

May 6, 1941.

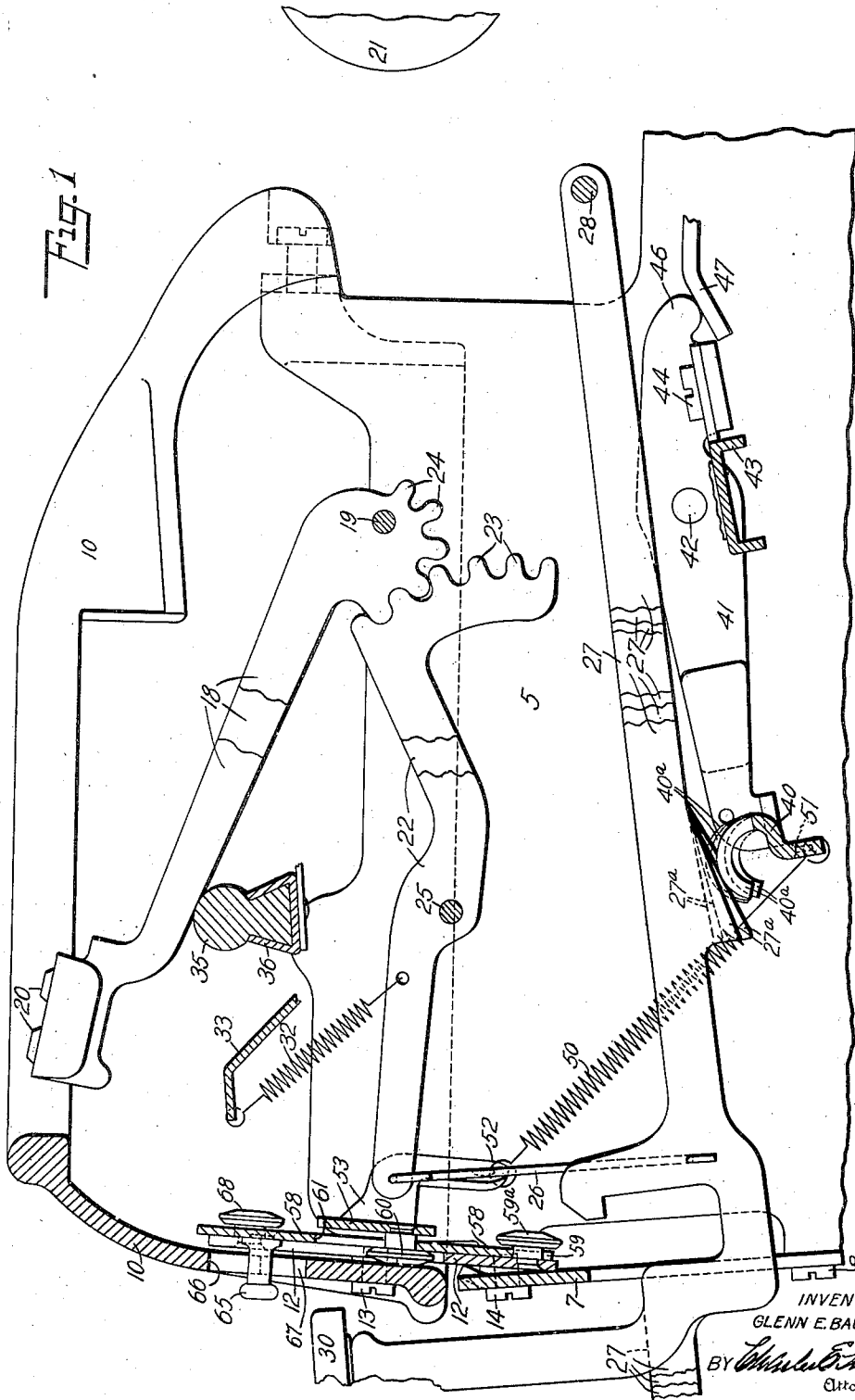
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TYPEWRITING AND LIKE MACHINES

Filed Sept. 22, 1938

2 Sheets-Sheet 1



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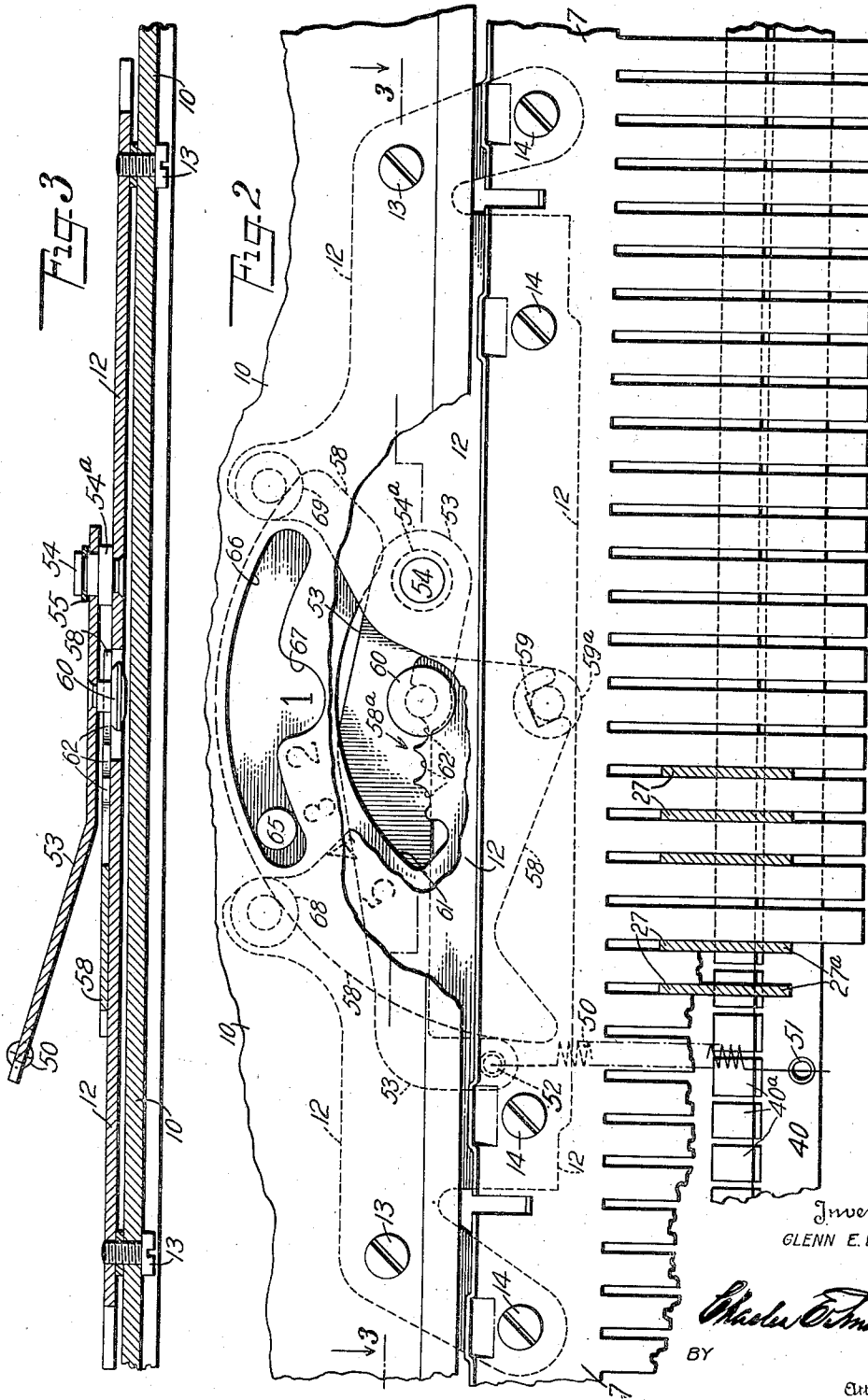
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2 Sheets-Sheet 2



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TYPEWRITING AND LIKE MACHINES

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4 Claims. (Cl. 197—33)

My invention relates to typewriting and like machines, and more particularly to improved touch regulating means for varying the operating touch of the type actions to accord with the individual desires of different operators.

The main object of my invention, generally stated, is to provide improved touch regulating means of the character specified which is extremely simple in construction yet highly effective and convenient in operation.

A more specific objects of my invention is to provide means for regulating the operating touch by an improved mechanism for adjusting the tension or effective force of a single spring means which is stressed at each operation of any type action.

A further object of my invention is to provide a touch regulating means of the character specified wherein the variable tension or effective force of the spring means acts uniformly on all of the type actions but is ineffective thereon during the initial portion of the operation of each type action.

A still further object of my invention is to provide a controlling means for adjusting the tension or effective force of returning spring means stressed by the operation of any of the type actions and to provide certain definite predetermined positions of adjustment in which the controlling means may be retained against the force of said spring means.

A still further object of my invention is to provide an improved means for indicating the position of adjustment of the touch regulating mechanism.

To the above and other ends, which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices set forth in the following description and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the different views:

Fig. 1 is an enlarged fragmentary fore and aft vertical sectional view of a No. 5 Remington portable typewriting machine equipped with the devices of my invention.

Fig. 2 is an enlarged, fragmentary, front elevational view of portions of the same with parts broken away.

Fig. 3 is an enlarged, sectional view of some of the parts shown in Fig. 2, the view being taken on line 3—3 of Fig. 2 and viewed in the direction of the arrows at said line.

I have shown my invention embodied in the present instance in a No. 5 Remington portable machine in which the devices of the present invention may be readily incorporated with but few changes in the existing structure. However, it is to be understood that my invention is not restricted to embodiment in such machine, but may be employed in various other types of typewriting and like machines wherever found available.

I have shown in the accompanying drawings only so much of the usual construction of the No. 5 Remington portable machine as is necessary to arrive at an understanding of my invention and its embodiment therein.

The frame of the present machine includes the usual side plates 5 which are joined by the usual cross members and the type bar segment, not shown. The front ends of the side plates 5 are connected to a key lever guide comb 7 attached thereto at 8. The upper portions of the sides and front of the machine are enclosed by a top plate 10 which may be regarded as a part of the frame of the machine. This top plate is removably secured to a bracket 12 by screws 13, as shown in Fig. 2. The lower portion of the bracket 12 is attached by screws 14 to the upper portion of the key lever guide comb 7 which may likewise be regarded as a part of the frame.

A full complement of type actions is mounted within the frame of the machine in the usual manner by means which are not shown.

It may be briefly described that each type action includes the type bar 18 operable about a pivot wire 19 to bring one or the other of types 20 on the bar to the printing point, depending on the case position of the usual platen 21. Each type bar 18 is moved to the printing position by a companion sub-lever 22 having a toothed portion 23 at the rear end thereof meshing with teeth 24 on the heel of the associated type bar. Each sub-lever is mounted intermediate its ends on a pivot 25, and the front end of each sub-lever 22 is pivotally connected by a pull wire 26 to a companion key lever 27. The rear end of each key lever 27 is pivotally mounted at 28 and the forward end portion thereof extends through a companion vertical slot in the guide comb 7. The upwardly extending forward end of each key lever is provided with a key 30 in the usual manner. Each type action is returned to normal position by a contractile spring 32 connected at one end to the companion sub-lever 22 and at its other end to a common anchor member 33.

The normal position of the parts of each type action is determined by the engagement of the companion type bar 18 with a resilient rest 35 mounted on the frame of the machine by a channel member 36.

A universal bar mechanism is provided for actuating the usual carriage escapement mechanism and the ribbon feed and vibrator mechanisms substantially as disclosed in the patent to Holden No. 1,397,166. The universal bar mechanism is actuated during an operation of any one of the type actions, or in the specific instance shown, the universal bar mechanism is arranged for operation by each of the key levers 27.

This universal bar mechanism includes a universal bar 40 extending transversely of the machine beneath all of the key levers 27, and is rigidly connected at the opposite ends thereof to arms 41 which carry pivot pins 42 that enter bearing holes in the side plates 5. A channel member 43 extends between the universal-bar arms 41 and is rigidly attached thereto by screw 44, shown in Fig. 1, to provide a rigid frame which is operable uniformly about the pivots 42 by any one of the key levers 27. In order to simplify the present disclosure, the carriage escapement and the ribbon feed and vibrator mechanisms and their operating connections to the universal bar frame have not been shown in the accompanying drawings, but it is to be understood that all of such mechanism may be of the usual construction employed in the No. 5 Remington portable machine and connected to the transverse channel member 43 for operation thereby in the usual manner. From certain aspects of my invention the universal bar need not be operative to actuate ribbon feed and/or other mechanism inasmuch as its function in conjunction with the touch regulating means is not dependent on this factor. The spring returned universal bar alone may be employed in some instances without connection to ribbon feed or other means for operation thereby.

Referring to Fig. 1, it may be seen that the normal position of the universal bar frame is determined by the engagement of a rearwardly extending portion 46 of one of the arms 41 with a fixed bracket 47 carried by the frame of the machine. The universal bar mechanism is returned to and held in such normal position by a contractile spring 50 having the lower end thereof connected at 51 to the universal bar 40 intermediate the ends thereof.

Touch regulating means are provided in accordance with the present invention by an improved means for varying the tension or the effective force of the spring 50 on the universal bar mechanism. Thus, the upper end of the spring 50 is connected at 52 to the downwardly and rearwardly extending end of an anchor or tension adjusting arm 53. This arm extends transversely of the machine in the rear of the front portion of the frame of the machine and is pivotally mounted at one end on a shouldered pin 54 having a reduced diameter portion riveted to the bracket 12. Referring to Fig. 3, it may be seen that the shouldered portion 54^a of the pin 54 serves to space the anchor arm 53 rearwardly from the bracket 12, and the arm 53 is retained on the pin 54 by a spring clip member 55 received by an annular groove in the rear end portion of the pin 54.

A manually adjusted control member or cam 58 is provided for adjusting the position of the anchor arm 53 about its pivot 54 to vary the tension

of the spring 50. This member 58 is formed by a segmentally shaped plate having an open ended bearing recess or seat 59 at the lower end thereof which receives the stem portion of a headed pivot pin 59^a which is secured at the reduced diameter front end thereof to the central portion of the bracket 12.

An operative connection is provided between the control member 58 and the anchor arm 53 for effecting an upward movement of the arm 53 about its pivot 54 against the force of the spring 50 by a clockwise movement of the member 58 about its pivot 59^a, which operative connection is so constructed and arranged that the control member 58 may be retained in any one of several predetermined positions of adjustment against the force of the spring 50. Thus, a headed pin 60 is riveted at a reduced diameter rear end portion thereof to the anchor arm 53, intermediate the ends thereof. The stem of the pin 60 engages the lower wall 58^a of an opening 61 provided in the control member 58. From a consideration of Fig. 2 it will be seen that the general contour of the wall 58^a is eccentric to the pivot 59^a so as to form a cam. This cam 58^a is engaged by the body portion of the pin 60 and is provided with a plurality of depressions 62 forming shallow detent recesses or notches. The pin 60 is so positioned on the arm 53 that the downward force exerted by the pin 60 against the cam 58^a through the action of the spring 50 is substantially against the dead center of the control member 58. That is, this force acts substantially on a radial line with respect to the pivot 59^a of the member 58. In this manner, the force of the spring 50 not only can not cause a turning movement of the control member 58 but due to the fact that the pin 60 engages in the shallow detent notches 62 will hold the control member in any predetermined position of adjustment determined by said notches.

It will thus be clear that inasmuch as each of the detent notches 62 in the cam 58^a is positioned a progressively greater distance from the pivot 59^a, a clockwise pivotal movement of the control member 58 from its position shown in Fig. 2 will cause the left hand end of the anchor arm 53 to move upward and thereby increase the tension of the spring 50. On the other hand a movement of the control member in the opposite direction will decrease the tension of the spring 50.

Referring to Fig. 1, it will be seen that the upper portion of the control member 58 is positioned directly in the rear of the vertically disposed portion of the top plate 10, and about midway between the sides of the machine as indicated in Fig. 2. Accordingly a means for affording convenient manual adjustment of the member 58 is provided by a finger piece in the form of a round pin or knob 65 secured to the front face of the upper portion of the member 58 and extending forward through an arcuate slot 66 in the top plate 10. Thus, the operator may conveniently adjust the finger piece 65 back and forth in the slot 66 to vary the tension of the spring 50.

A means for indicating the various positions of adjustment of the present touch regulating mechanism is provided by suitable indices such for example, as numerical indices "1," "2," "3," "4" and "5" marked on the front surface of the control member 58. Only one of these indices is visible at each position of the control member 58 through an opening formed by a semi-circular notch 67 at the central portion

of the lower wall of the slot 66 in the top plate 10. The indices in the present instance are shown suitably marked on the face of the member 58 at properly spaced intervals so that an associated one of these numerical indices will be positioned centrally in the window 67 when the body portion of the pin 60 enters a corresponding detent notch 62 formed in the control member 58.

In order that the control member 58 may be properly supported and guided on the bracket 12 in the movement of the members 58 to different positions of adjustment, I have provided in addition to the headed pivot 59^a two headed pins 68 and 69 secured to the bracket 12 and having the heads thereof overlapping the upper segmental edge of the control member.

It will be seen that the axes of the pivots 54 and 59^a, as well as the axis of the pin 60, are horizontally disposed in parallel arrangement and extend fore and aft of the machine and that a simple inexpensive effective and compact construction comprising but two parts, one operative directly on the other, is provided. The touch regulating means, it will be observed, is confined within a narrow space back of the front of the machine where it does not interfere with any of the other working parts of the machine and where it is readily accessible to the operator for adjustment.

It will be seen, moreover, that the entire touch regulating means with the supporting bracket 12 may be introduced into or removed from the machine as a single unitary construction, subject to a connection of the spring 50 to or a disconnection thereof from the arm 53. Thus, by removing the screws 13 and 14, and such other screws as hold the top plate 10 in position, the entire touch regulating means, together with the supporting bracket 12, may be removed after the spring 50 is disconnected.

Should it be found desirable to remove the top plate 10 without removing the touch regulating means, it is merely necessary to remove the screws 13 and such other screws as hold the top plate in position. This enables the top plate to be removed independently of the bracket 12 and the touch regulating means supported thereon.

It is apparent from what has been pointed out that the assembly of the touch regulating means outside of the machine and its introduction as a single unit into the machine may be readily effected at a comparatively small cost.

Referring to Fig. 1 it will be understood that the key levers 27 for the different banks of keys have depending projections 27^a that engage the separate bendably adjustable contact members 40^a on the universal bar 40. It will be understood, moreover, that there are varying extents of lost motion between the projections 27^a and the contact members 40^a depending on the extent of the dip of the key levers 27 at these points. It follows therefore that due to such lost motion the force of the spring 50 during the initial portion of the printing movement of different type actions is not exerted against them and the force of the associated returning spring 32 alone need be overcome by the key depression. It results therefore that an initial easy start of each type action may be effected and it is not until the parts thereof have been set in motion that the resistance of the spring 50 becomes effective. It is important, however, that the force of the spring 50 shall be effective

during the latter portion of the printing movement of each type action and that it shall exert an equal force against all type actions as determined by the adjustment of the touch regulating means. The effect of this is to render the additional force of the spring 50 operative to bring about a quick return of each type bar from its printing position and thereby reduce the liability of collision between the type bars in the danger zone near the platen and without having the force of the spring 50 exerted in each instance against a type action throughout its entire printing movement.

From the foregoing description it will be understood that I have provided a simple, compact, inexpensive and highly effective means for attaining the purposes pointed out.

Various changes may be made in the construction, and some of the features thereof may be employed without others, without departing from my invention as it is defined in the accompanying claims.

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

1. In a typewriting machine, the combination of type actions including printing keys, spring means exerting a resistance to the actuation of said type actions, and touch regulating means for increasing or decreasing the force of said spring means thereby varying the touch on the printing keys, said touch regulating means comprising a pivoted manually set controlling member, and a tensioning member cooperating with said spring means and controlling member, said last mentioned member being provided with a cam having detent recesses in which a part of the tensioning member may be received to hold it in any position to which it is adjusted by said cam.

2. In a typewriting machine, the combination of type actions including printing keys, a universal bar actuated thereby, a spring for returning said universal bar to normal position, and touch regulating means for varying the touch on the printing keys comprising a pivoted manually set controlling member having a cam with extreme and intermediate detent notches in the face thereof, and a pivoted tensioning member constituting an anchor to which one end of said spring is attached and having a part thereof that coacts with said cam and detent notches for adjustment towards and from the pivotal center of said controlling member for varying the position of the tensioning member and for holding it and the controlling member in any of the positions of adjustment determined by said detent notches.

3. In a typewriting machine, the combination of type actions including printing keys, a universal bar actuated thereby, a spring for returning said universal bar to normal position, and touch regulating means for varying the touch on the printing keys comprising a pivoted manually set controlling member mounted at the front of the machine and having a cam thereon, indexing means for indicating different positions of adjustment of said controlling member, and a pivoted arm to which one end of said spring is anchored, said arm having a part thereof that coacts directly with said cam and is movable thereby towards and from the pivotal center of said controlling member for varying the force exerted by said spring.

4. In a typewriting machine, the combination of type actions including printing keys, a uni-

versal bar actuated thereby, a spring for returning said universal bar to normal position, and touch regulating means for varying the touch on the printing keys comprising a pivoted manually set controlling member mounted within the machine frame in the rear of the front thereof and having a finger piece that extends through an opening in said frame, said controlling member having a cam with both extreme and intermediate detent notches therein, 10

and a tensioning member to which one end of said spring is anchored and having a contact portion that coacts directly with said cam and detent notches, said contact portion being movable towards and from the pivotal center of the controlling member by said cam and the reaction of said spring retaining the controlling and tensioning members in different adjusted positions as determined by said detent notches.

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