J. A. RONCHETTI.

TYPE WRITING MACHINE.

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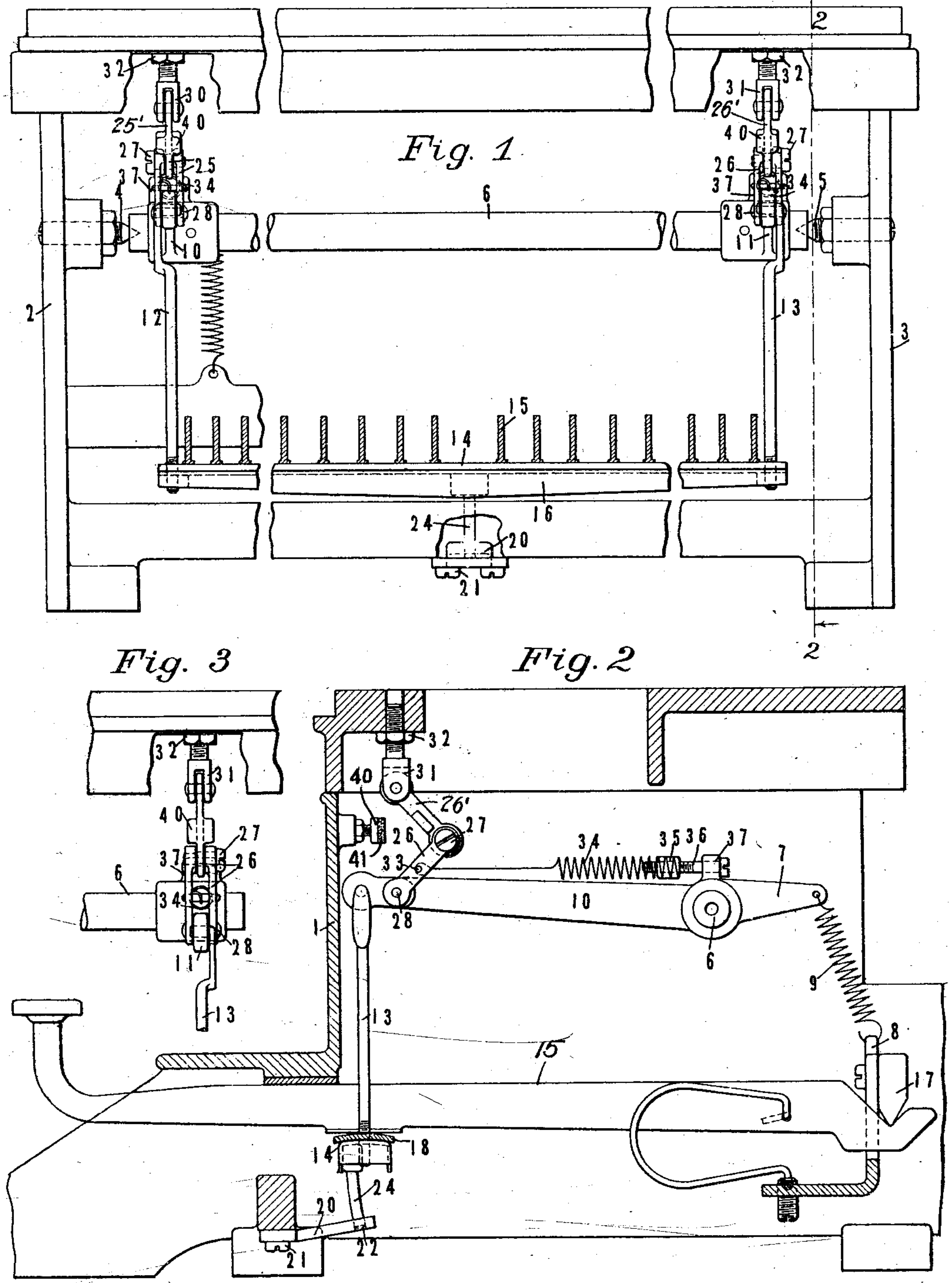
1,053,065. Patented Feb. 11, 1913.



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UNITED STATES PATENT OFFICE.

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TYPE-WRITING MACHINE.

1,053,065. Specification of Letters Patent. Patented Feb. 11, 1913.

Application filed April 27, 1908. Serial No. 429,448.

To all whom it may concern:

Be it known that I, JOSEPH A. RONCHETTI, a subject of the King of Italy, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriting machines, and one of the objects thereof is to provide improved means adapted silently to arrest the movements of certain operative parts thereof.

Another object of the invention is to provide improved means of simple construction adapted through a connection with the universal bar, to arrest without concussion or impact the strokes of the key levers when they are depressed to effect printing.

Another object hereof is to provide simple and efficient means for returning the key levers to their normal positions after depression and for regulating the throw of the key levers.

A further object of the invention is to provide guiding means for the universal bar which will prevent a relative slipping movement between the same and the key levers when the latter are depressed.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is shown one of the various possible embodiments of my invention, Figure 1 is a front elevation showing a portion of a typewriting machine, parts of which are broken away better to illustrate the construction. Fig. 2 is a side view thereof, partly in section, and Fig. 3 is a front view of one of the link devices employed to effect a silent stoppage of certain moving parts of the typewriting machine.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawing, 1 indicates the front wall of the frame of a typewriting machine, and 2 and 3, respectively, the side walls thereof. Extending inwardly through the side walls 2 and 3, in the present instance, are a pair of oppositely disposed pins, 4 and 5, which form pivotal supports for a universal rock shaft, 6, which is adapted through suitable connection to actuate the feeding mechanism or other operative parts of a typewriter not herein shown. Rock shaft 6, in the present instance, is provided with an arm 7, between which and a fixed portion of the machine, 8, is interposed a retractile spring, 9, which holds said rock shaft in normal position and assists in the returning thereof to such position when the same has been rocked. Rock shaft 6 is also provided with a pair of forwardly extending rocker arms or actuating levers, 10 and 11, respectively, one of which extends therefrom at either end, said rocker arms at their forward ends carrying depending links or tension bars 12 and 13, respectively, which support, at their lower ends, the universal bar 14. This universal bar 14, upon which the key levers 15 rest in the usual manner, is provided with a stiffening rib or truss, 16. Key levers 15, which in the present instance are supported at their rear ends upon the knife edge 17, extend forwardly through the front portion of the machine and rest intermediate their ends upon a cushion or pad of relatively soft, sound deadening material, 18, carried by the universal bar.

In order to prevent the universal bar 14 from slipping sidewise with respect to the key levers when the latter are depressed, I provide guiding means whereby it will be compelled to move in an arc equal to the arc described by those portions of the key levers which are in contact therewith. The guiding means in the present instance is constituted by bracket 20 secured by means of a screw 21 to the frame of the machine, said bracket being provided with aperture 22, which receives a curved pin 24, which depends from the middle portion of the universal bar. It will be seen that when the universal bar is depressed this pin, being guided in the aperture 22 of bracket 20,

will prevent any lateral movement of said universal bar, and, being curved, will cause the same to move in the arc of a circle as above pointed out.

The mechanism employed for arresting the downward strokes of the key levers effects such operation, in the present instance, through a connection with the rocker arms 10 and 11, from which the universal bar is suspended. This mechanism, in the present instance, is constituted by two pairs of links, 25, 25′ and 26, 26′, the links constituting each pair being pivotally connected together as at 27. The lowermost or floating link of each pair is constituted by a pair of spaced members which straddle arms 10 or 11 as clearly shown in Fig. 3. One end of each pair of these pivotally connected links is connected, as at 28, with one of arms 10 and 11, and the opposite end thereof is connected to adjustable supports 30 and 31, which, in the present instance, are threaded into the frame of the machine to take up the pull or tension exerted by the parts when actuated, as will be clear from Fig. 2 of the drawings. These adjustable supports are adapted to be held in any adjusted position by means of lock nuts 32.

Attached to each pair of links 25, 25′ and 26, 26′ at any desired point thereof, as at 33, is a retractile spring, 34, the opposite end of said spring being attached to a support 35, threaded upon an adjusting screw 36, which extends through a lug 37 formed upon a fixed portion of the machine frame. These springs normally hold the links 25, 25′ and 26, 26′ in flexed position, as shown in Fig. 2 and resist a movement thereof, which would tend to straighten them, as when the universal bar is moved downward by a depression of any of the key levers.

In order to prevent an overthrow of the links 25, 25′ and 26, 26′, when they are straightened, as by a depression of the universal bar, adjustable abutments are provided, as at 40, with which the links engage when they are moved into alinement. These adjustable abutments are preferably provided with cushions, such as shown at 41.

Having thus described the construction of this embodiment of my invention, the operation thereof which should be largely obvious, is substantially as follows:—It will be seen that when the key levers are depressed, thereby causing a downward movement of the universal bar, the rocker arms 10 and 11 respectively will be swung downward through their connection with links 12 and 13, and that this operation will cause the double links 25, 25′ and 26, 26′ which have been held in flexed position by means of spring 34 to straighten. When these sets of double links have straightened, as when the links of each set move into alinement, the universal bar will have reached its limit of movement in a downward direction. The parts accordingly will have been arrested without impact or concussion, and therefore noiselessly. During the above operation the spring 34 interposes a yielding resistance to the straightening of the connected links, and said spring also assists in the returning of the parts to their normal position, shown in Fig. 2 of the drawings. During the depression of the universal bar, the same has been guided by means of the pin 24 which works in the aperture 22 of bracket 20, as has been above described. It will accordingly be seen that I have provided a mechanism well adapted to attain, among others, all the ends and objects above enumerated, in a simple yet efficient manner. The movements of the universal bar and associated parts are arrested without any impact or concussion and the mechanism employed to arrest such movements is also adapted to assist in the return of the parts to their normal positions. The throw of the key levers may be conveniently and accurately regulated by an adjustment of the supports for the double links. The mechanism employed for guiding the universal bar operates to eliminate friction between the same and the key levers and the touch is therefore made easier.

While I have shown my invention applied to a universal bar of a typewriting machine, it is obvious that the same is not limited to such employment, but that it is well adapted to be associated with equal facility with other moving parts of typewriting machines.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a typewriting machine, in combination with a movable part and independent means for advancing the same, a stop for said movable part comprising a plurality of normally flexed pivotally connected members extending between a fixed portion of the machine and said movable member.

2. In a typewriting machine, the combination with a movable part thereof, of a

stop therefor comprising a pair of normally flexed members pivotally connected to each other and similarly connected with a fixed portion of the machine and with the movable part and means connected with said movable member for advancing the same.

3. In a typewriting machine, the combination with a movable part, of a device for arresting the movement thereof without producing noise comprising a pair of links pivoted together and adapted normally to lie in a flexed position, one of said links being connected with a relatively fixed support and the other with the movable part, and means connected with said movable member for actuating the same whereby said stop device is actuated.

4. In a typewriting machine, the combination with a movable part thereof, of means for silently arresting a movement of the movable part comprising a pair of pivotally connected links one of which is pivotally attached to a relatively fixed support and the other thereof to said movable part, said links normally lying flexed and arresting a movement of said part when straightened, and independent means for transmitting motion to said movable member for actuating the same.

5. In a typewriting machine, the combination with a movable part thereof, of means for advancing said movable part, independent means for silently arresting a movement of the movable part comprising a pair of pivotally connected links, one of which is pivotally attached to a relatively fixed support and the other to said movable part, said links normally lying in flexed position and arresting a movement of said movable part when straightened, and means which yieldingly resists a straightening of said links.

6. In a typewriting machine, the combination with a movable part thereof, of means for advancing said movable part, independent means for silently arresting a movement of said movable part comprising a pair of pivotally connected elements, one of which is connected with the movable part, a fixed support for the other of said elements, and spring means for flexing said pivotally connected elements, said elements being adapted to straighten when said movable part is actuated, whereby the movement of the latter will be arrested.

7. In a typewriting machine, the combination with a movable part thereof, of means for advancing said movable part, independent means for silently arresting a movement thereof comprising a pair of pivotally connected elements, one of which is pivotally connected with said movable part, an adjustable support for the other of said elements, and spring means for normally urging said elements to flexed positions, said elements being adapted to straighten when said movable part is actuated, whereby the movement of the same will be arrested.

8. In a typewriting machine, the combination with a movable part thereof, of means for advancing said movable part, independent means for silently arresting a movement thereof comprising a pair of pivotally connected elements, one of which is connected with the movable part, an adjustable support to which the other of said elements is pivotally connected, and spring means for normally urging said pivotally connected elements to flexed positions and for yieldingly resisting such movement thereof as would tend to straighten them.

9. In a typewriting machine, the combination with the universal bar and the key levers which rest thereon, and means for arresting a movement of the universal bar when the same is depressed by one of the key levers, comprising a pair of pivotally connected links, one of which is connected with the universal bar and the other with a relatively fixed portion of the framing of the machine, and spring means for urging said links to flexed positions, said links being adapted to straighten when the universal bar is depressed whereby the movement thereof will be yieldingly resisted and ultimately effected.

10. In a typewriting machine, the combination with the universal bar and the key levers which rest thereupon, of means for arresting a movement of the universal bar when the same is depressed by one of the key levers, comprising a pair of pivotally connected members, one of which is connected with the universal bar and the other with a relatively fixed support and spring means connected with said members near their point of flexure adapted to urge said members to flexed positions and to yieldingly resist a straightening movement thereof when the universal bar is depressed whereby the movement thereof will be arrested.

11. In a typewriting machine, the combination with a universal rock shaft, arms extending from said rock shaft, a universal bar suspended upon links which depend from said arms, and the key levers which rest upon said universal bar, of means for arresting the movements of said above mentioned parts comprising a plurality of pivotally connected members one of which is attached to one of said arms, a relatively fixed support to which the other of said members is pivotally connected, and a spring connected with said members near their point of flexure and adapted to urge the same to flexed positions.

12. In a typewriting machine, the combination with the universal rock shaft, rocker arms extending from said shaft, hangers depending from said arms, a universal bar

suspended upon said hangers and the key levers which rest upon said universal bar, of means for arresting movements of said above mentioned parts comprising two pairs of pivotally connected links, one of the links of each pair being pivotally connected with one of said rocker arms, relatively fixed supports to which the other link of each pair is pivotally connected, and a spring connected to each pair of links near its point of flexure adapted to resist a movement of said links which would tend to straighten them as when the universal bar is depressed by one of the key levers.

13. In a typewriting machine, the combination with the universal bar adapted to support the key levers and movable means upon which said universal bar is suspended, of means for silently arresting the movements of said universal bar when the same is depressed by any of the key levers, comprising one or more sets of pivotally connected links having one end thereof attached to the means from which the universal bar is suspended and the other end thereof connected with a relatively fixed support, a spring connected to the links of each set near their point of flexure adapted yieldingly to resist a straightening of said links when the universal bar is depressed by one of the key levers and to return said universal bar to its normal position when the key lever is released.

14. In a typewriting machine, the combination with the universal bar, the key levers which rest upon said bar and the means from which said universal bar is suspended, of means for arresting the movement of the above mentioned parts when the universal bar is depressed by one of the key levers, comprising a pair of pivotally connected members, one of which is connected with the support of the universal bar and the other with a relatively fixed support connected with the frame of the machine, a spring connected with said pivotally connected members and adapted to urge the same to flexed positions and to resist a straightening movement of said members when the universal bar is depressed, means for adjusting the support for said members, and means for varying the tension of said spring.

15. In a typewriting machine, the combination with the universal bar, the key levers which rest thereupon and a movable support from which said universal bar is suspended, of means for yieldingly resisting depression of the universal bar when one of the key levers is actuated and for silently arresting the movement thereof at the end of the stroke of the key lever, comprising a system of pivotally connected links adapted normally to lie in a condition of flexure, a spring connected with said system and adapted to urge the same to flexure, one end of said system being pivotally connected with the support for said universal bar and a relatively fixed support to which the other end of said system is pivotally connected, means for adjusting said support, and means for adjusting the tension of said spring.

16. In a typewriting machine, the combination with a movable part, of means for arresting a movement thereof comprising a pair of pivotally connected links one of which is attached to said movable part and the other to a relatively fixed support, means for urging said links to positions of flexure and for resisting a straightening movement thereof, and means coacting with the links for preventing said links from overthrowing when straightening.

17. In a typewriting machine, the combination with the universal bar, the key levers which rest thereupon and a universal rock shaft having arms upon which said universal bar is supported, of means for arresting the downward movements of said universal bar when the key levers are depressed comprising a double link, one end of which is pivotally connected with each of said arms, an adjustable support to which the other end of said double link is pivotally connected, an adjustable spring for urging said link to a condition of flexure and yieldingly resisting a straightening movement thereof, means for adjusting said support, means for adjusting the tension of said spring, and an adjustable means for preventing said link from overthrowing when the same is straightened.

18. In a typewriting machine, the combination with the universal rock-shaft having arms thereon and a universal bar suspended therefrom, key levers which rest upon the universal bar, of means for compelling a movement of the universal bar when same is depressed by one of the key levers in the same arc that those portions of the key levers which rest in engagement with the universal bar move when they are depressed.

19. In a typewriting machine, the combination with a suspended universal bar upon which the key levers rest, and means independent of the suspending means for guiding said universal bar and for compelling it to move in the same arc when depressed by the key levers as the portion of the key levers in contact therewith.

20. In a typewriting machine, the combination with the universal bar and the key levers which rest thereupon, of a universal rock shaft, supporting means connected therewith for said universal bar, and guides for the universal bar which compel the same to move in the same arc as that described by those portions of the key levers in contact therewith when said universal bar is depressed by the key levers.

21. In a typewriting machine, the combination with the universal bar and the key levers which rest thereon, of an apertured bracket extending from a fixed portion of the machine, and a curved member depending from said universal bar and extending through the aperture of said bracket, said member operating to guide the universal bar when the same is depressed.

22. In a typewriting machine, the combination with a pivotally suspended universal bar and the key levers which rest thereupon, of means for guiding the universal bar and causing it to move in an arc when depressed, comprising coacting members, one of which is supported upon the fixed portion of the framing of the machine and the other supported upon said universal bar.

23. In a typewriting machine, the combination with the universal bar and the key levers which rest thereupon, of means for guiding the universal bar and causing the same to move in the arc of a circle when the same is depressed comprising an apertured member extending from a fixed portion of the frame of the machine centrally of the universal bar and beneath the same, and a curved member depending from said universal bar and moving in the aperture of said fixed member when the universal bar is depressed whereby the latter is guided.

24. In a typewriting machine, in combination with a pivotally suspended universal bar and a key lever in contact therewith for actuating the same, means for guiding the universal bar along the path taken by the point of contact between the universal bar and the key lever.

25. In a typewriting machine, in combination, a frame, a relatively fixed part mounted upon said frame, a movable member, a plurality of pivotally connected links normally lying in flexed position between said relatively fixed part and said movable member; and a screw connected at one end to the frame, and so attached at its other end to said relatively fixed part as to be effective as a tension-member to prevent a displacement of said fixed part when said pivotally connected links are being straightened.

26. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and at the other end to said actuating lever, a movable part, and an intervening floating link pivotally connected at different points to said actuating lever and said movable part, the pivot point between said actuating lever and said floating link adapted to move relatively away from the point of operative connection between said tension bar and said key lever as the key lever is depressed.

27. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever pivoted to the frame, a tension-bar operatively connected at one end to said key-lever and at the other end to actuating lever, a movable part, and an intervening floating link pivotally connected at different points to said actuating lever and said movable part, the fixed pivotal points of said key-lever and said actuating lever being on the same side of said tension-bar.

28. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and at the other end to actuating lever, a movable part, an intervening floating link forming one part of a toggle pivotally connected at different points to said actuating lever and said movable part, and a spring connected therewith for breaking the toggle.

29. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and at the other end to said actuating lever, a movable part, an intervening floating link pivotally connected at different points to said actuating lever and said movable part, and a spring connected to said floating link for restoring the parts to normal position.

30. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and pivotally connected at its other end with said actuating lever, a movable part, a floating link pivotally connected at different points to said actuating lever and said movable part, and means for adjusting the normal position of one of said parts relatively to another, the pivot point between said actuating lever and said tension-bar adapted to move continually away from said adjusting means when said key-lever is depressed.

31. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and at the other end to said actuating lever, a movable part, an intervening floating link pivotally connected at different points to said actuating lever and said movable part, and a spring attached at one end to said floating link and movably supported at the other end.

32. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and at the other end to

said actuating lever, a movable part, an intervening floating link pivotally connected at different points to said actuating lever and said movable part, and a spring secured at one end to said floating link and at the other end to a member attached to said actuating lever.

33. In a typewriting machine, in combination, a relatively fixed support, a floating link, a link pivoted to said support and also pivoted at its lower extremity to said floating link, said links forming a normally flexed toggle, a spring connected to said floating link at a point distant from the connection between said links, a finger lever, and a connection whereby upon depressing said finger lever said normally flexed toggle will be straightened.

34. In a typewriting machine, in combination, a relatively fixed portion, a universal bar, a key-lever adapted to rest on said universal bar, a plurality of pivotally connected members forming a toggle between said relatively fixed portion and said universal bar adapted to be extended into a substantially straight line, when said key-lever is depressed, and means for silently arresting the key-lever at the end of its upward movement.

35. In a typewriting machine, in combination, a relatively fixed portion, a universal bar, a plurality of serially disposed pivotally connected members adapted to assume extended position but normally lying in flexed position and constituting a toggle interposed between said relatively fixed portion and said universal bar, and resilient means connected with one of the said serially disposed members adapted to hold the same in flexed position.

36. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a member attached thereto, a movable part, an intervening floating link pivotally connected at different points to said actuating lever and said movable part, and a spring connected at one end with said floating link and at the other to said member for returning said parts to normal position.

37. In a typewriting machine, in combination, a relatively fixed portion, a universal bar, a plurality of pivotally connected portions normally lying in flexed position interposed between said relatively fixed portion and said universal bar, resilient means connected with one of said portions adapted to hold the same in flexed position, and means for adjusting the tension of said resilient means.

38. In a typewriting machine, in combination a relatively fixed portion, a universal bar with key-levers for actuating the same, a plurality of intermediate pivotally connected portions normally lying in flexed position, and resilient means adapted to aid in returning said pivotally connected portion and said universal bar to normal position when moved therefrom by said key-levers.

39. In a typewriting machine, in combination, a relatively fixed portion, a universal bar, a member pivotally connected with said relatively fixed portion, a second member connected with said first member adapted to form a toggle therewith, means connecting the end of the second member with said universal bar, and resilient means for normally holding the toggle formed by said members in flexed position.

40. In a typewriting machine, in combination, a relatively fixed portion, a universal bar, a link pivotally connected with said relatively fixed portion, a second link connected with said first link adapted to form a toggle therewith, means connecting the end of the second link with said universal bar, resilient means for normally holding the toggle formed by said links in flexed position, and means for adjusting said resilient means.

41. In a typewriting machine, in combination, a relatively fixed portion, a universal bar, a link pivotally connected with said relatively fixed portion, a second link connected with said first link adapted to form a toggle therewith, means connecting the end of the second link with said universal bar, resilient means for normally holding the toggle formed by said links in flexed position, means for adjusting the tension of said resilient means, and separate resilient means adapted to aid in the return of said universal bar to normal position.

42. In a typewriting machine, the combination with a movable part, of means for silently arresting and limiting the movement of said movable part comprising a pair of pivotally connected members, one of which is connected to said movable part and the other to a relatively fixed part of the machine, and means associated with one of said pivotal points of connection for adjusting the length of travel of said movable part.

43. In a typewriting machine, the combination with a movable part, of means for silently arresting and limiting the movement of said movable part comprising a pair of pivotally connected members, one of which is connected to said movable part and the other adjustably connected to a relatively fixed part of the machine, and spring means extending between one of said pivotally connected members and said movable part adapted to aid in returning said parts to normal position.

44. In a typewriting machine, in combination, a relatively fixed portion, a movable member, a toggle interposed between said

fixed member and said movable member normally lying in flexed position, a key-lever resting on said movable member, and means adapted to gradually increase the resistance to the movement of said movable member on depression of said key-lever.

45. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a member attached thereto, a movable part, an intervening floating link pivotally connected at different points to said actuating lever and said movable part, a spring connected with said floating link at one end and to said member at the other for returning said parts to normal position, and means for adjusting the normal position of one of said parts relatively to another.

46. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and pivotally connected at its other end with said actuating lever, a movable part, a floating link pivotally connected at different points to said actuating lever and said movable part, means for adjusting the normal position of one of said parts relatively to another, and spring means attached to said floating llnk adapted to aid in returning the parts to normal position.

47. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and pivotally connected at its other end with said actuating lever, a movable part, a floating link pivotally connected at different points to said actuating lever and said movable part, and means for adjusting the normal position of one of said parts relatively to another, the distance between the pivot point connecting said actuating lever and said floating link and the point of operative connection of said tension bar and key lever being adapted to increase as said key lever is depressed.

48. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever pivoted to the frame, a tension-bar operatively connected at one end to said key-lever and pivotally connected at its other end with said actuating lever, a movable part, a floating link pivotally connected at different points to said actuating lever and said movable part, and means for adjusting the normal position of one of said parts relatively to another, the fixed pivotal points of said key-lever and said actuating lever being on the same side of said tension-bar.

49. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a pivoted key-lever, a tension-bar intermediate and operatively connected with said two levers, a movable part, a floating link pivotally connected at one point to said movable part and at another point to said actuating lever, means for adjusting the normal relation between the several pivot points, and a spring connected to said floating link for restoring the parts to normal position, the fixed pivot points of said first mentioned levers being on the same side of said tension-bar.

50. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and at the other end to actuating lever, a movable part, an intervening floating link pivotally connected at different points to said actuating lever and said movable part, and a spring for returning said parts to normal position, the distance between the pivot point connecting said actuating lever and said floating link and the point of operative connection of said tension bar and key lever being adapted to increase as said key lever is depressed.

51. In a typewriting machine, in combination, a frame, an actuating lever having a pivotal connection therewith, a key-lever, a tension-bar operatively connected at one end to said key-lever and pivotally connected at its other end with said actuating lever, a movable part, a floating link pivotally connected at different points to said actuating lever and said movable part, a spring for returning said parts to normal position, and means for adjusting the normal position of one of said parts relatively to another, the distance between the pivot point connecting said actuating lever and said floating link and the point of operative connection of said tension bar and key lever being adapted to increase as said key lever is depressed.

52. In a typewriting machine, in combination, a fixed frame-portion provided with a threaded aperture, a threaded shank adapted to serve as a tension member having one end in said aperture and having its other end extending away from said frame portion and terminating at a distance therefrom, a link-support connected with the outer end of said threaded shank and adapted to be adjustably distanced from said frame-portion upon rotating said threaded shank, a lock device effective to maintain the adjustment of the link support, a link pivoted to said link support and normally extending downwardly toward the rear of the base of the machine and adapted to swing into a position in approximate parallelism with said threaded-shank tension member, a floating link pivotally connected to the extremity of the aforesaid link, said links forming a normally flexed toggle, a finger lever, a pull wire operatively inter-

vening between said finger lever and said toggle whereby upon depressing said finger lever the normally flexed toggle will be straightened into approximate parallelism with said threaded shaft, a contractile spring connected to said floating link at a point below and distant from the connection between said links and adapted to return the links forming the toggle to normally flexed position after having been actuated by said finger lever, and a movable part pivotally connected to one end of said floating link and extending therefrom horizontally toward the rear of the machine, the movement of which is adapted to be silently and gradually arrested without impact or concussion by said straightening toggle.

In testimony whereof I affix my signature, in the presence of two witnesses.

JOSEPH A. RONCHETTI.

Witnesses:
ARTHUR J. B. HUDSON,
ROLLIN E. BALLOU.