

May 21, 1940.

G. K. HOWLAND ET AL
TYPEWRITING AND LIKE MACHINE

2,201,775

Filed Oct. 5, 1938

3 Sheets-Sheet 1

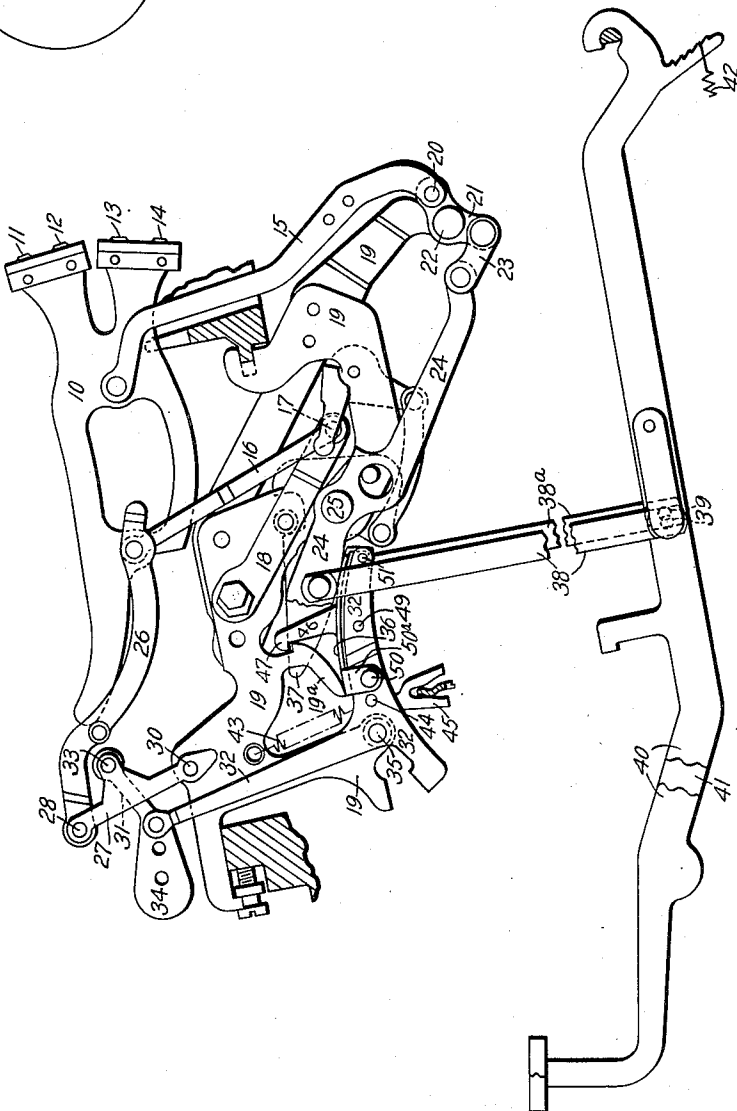
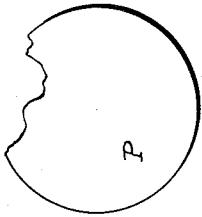


Fig. 1

Inventors
GEORGE K. HOWLAND
OTTO E. HULTGREN

By

Charles Smith

Attorney

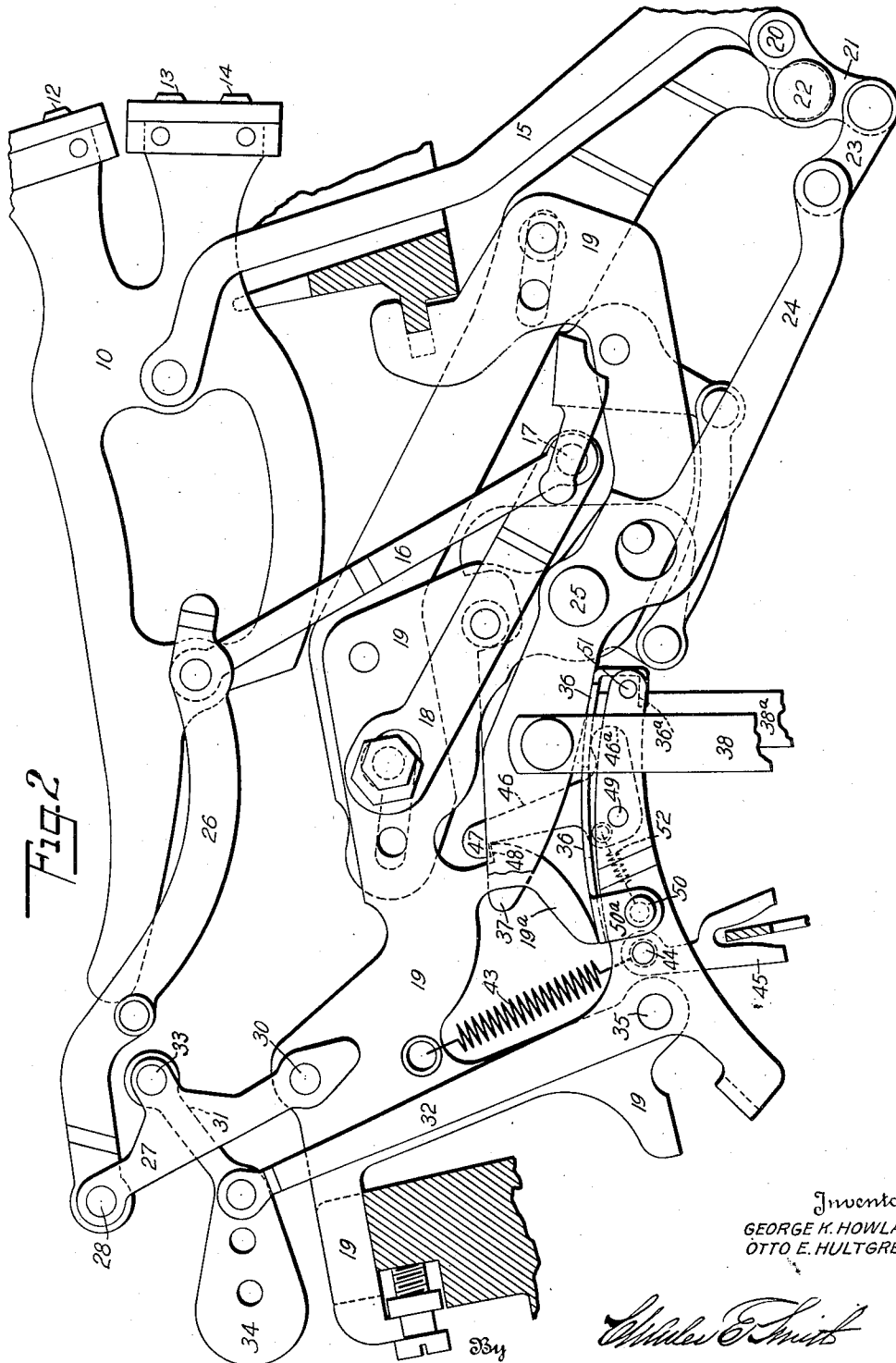
May 21, 1940.

G. K. HOWLAND ET AL
TYPEWRITING AND LIKE MACHINE

2,201,775

Filed Oct. 5, 1938

3 Sheets-Sheet 2



May 21, 1940.

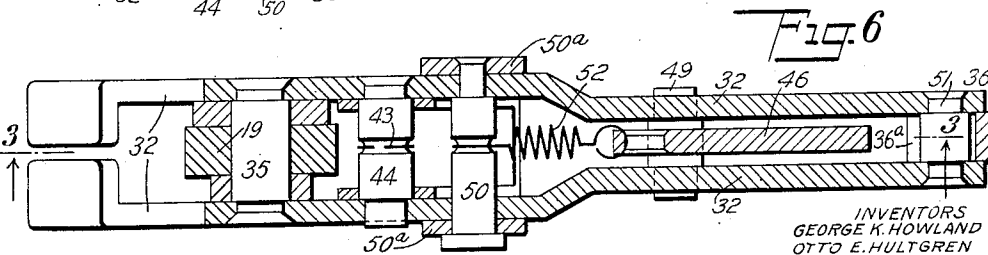
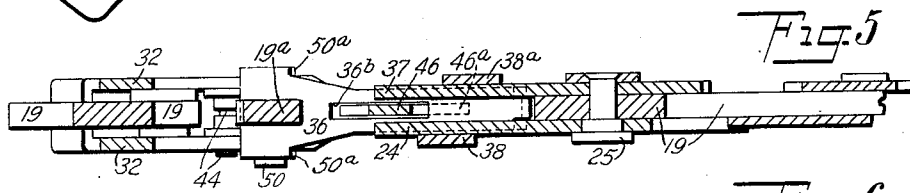
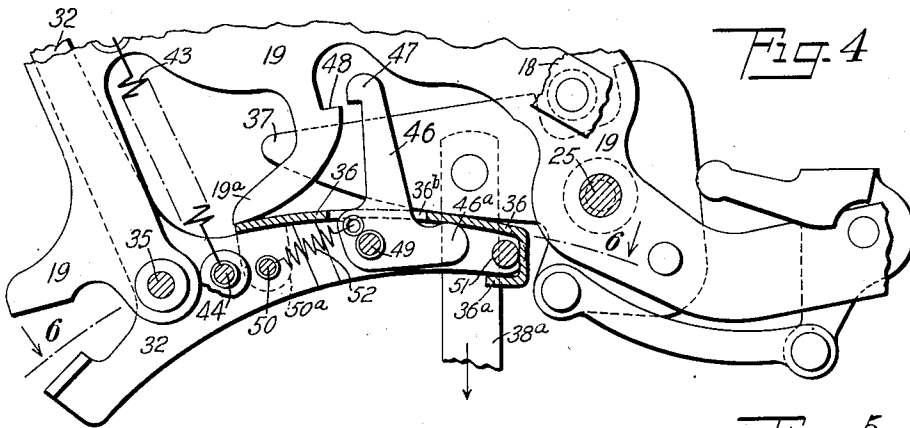
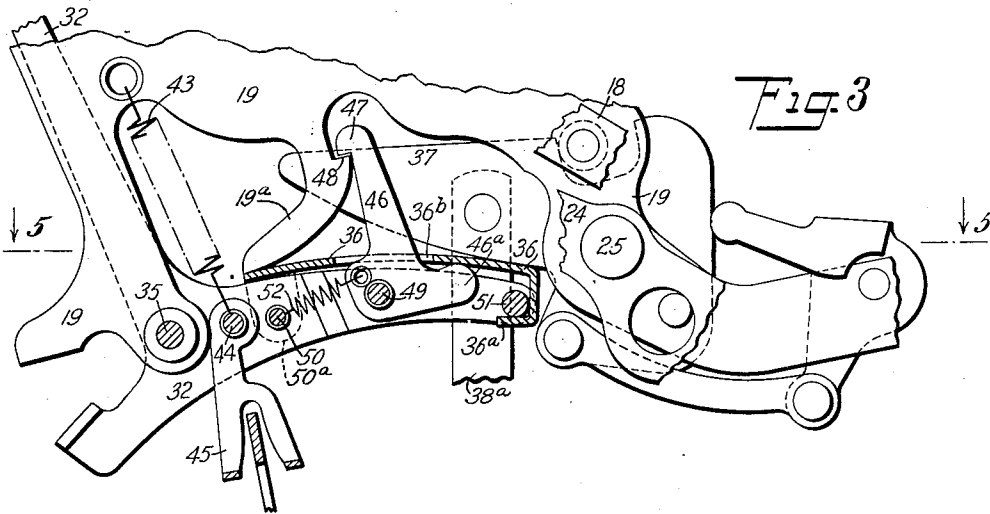
G. K. HOWLAND ET AL

2,201,775

TYPEWRITING AND LIKE MACHINE

Filed Oct. 5, 1938

3 Sheets-Sheet 3



INVENTORS
GEORGE K. HOWLAND
OTTO E. HULTGREN

Wm. E. Smith

Attorney

UNITED STATES PATENT OFFICE

2,201,775

TYPEWRITING AND LIKE MACHINE

George K. Howland and Otto E. Hultgren, Elmira,
N. Y., assignors to Remington Rand Inc.,
Buffalo, N. Y., a corporation of Delaware

Application October 5, 1938, Serial No. 233,432

16 Claims. (Cl. 197—31)

The present invention relates to typewriting and like machines and more particularly to means for preventing rebound of the type bars and associated parts from their normal positions of arrest in the return thereof after each actuation.

One of the main objects of the invention generally stated is to provide simple and highly effective means of the character specified which will offer but little resistance to the actuation of the type actions, thereby affording a light touch on the printing keys.

Another object of the invention is to provide means of the character specified which are substantially noiseless in their operation.

A further object of the invention is to provide such anti-rebound means which may be readily combined with existing type actions without modifying or materially modifying the structural features thereof except to include therein devices of the present invention as a substitute for the anti-rebound devices previously employed.

A still further object of the invention is to provide an improved anti-rebound means including a latch that is normally positively engaged with a relatively fixed part of the machine and is automatically released on the depression of a printing key before the associated type bar is moved towards the printing position.

To the above and other ends which will hereinafter appear the 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 a detail, side elevation of a type action embodying the anti-rebound features of the present invention, the parts being shown in a normal position.

Fig. 2 is a corresponding enlarged, fragmentary view of a portion of the same.

Fig. 3 is an enlarged, detail, fragmentary, vertical, sectional view showing a portion of the structure illustrated in Fig. 2, with the parts in normal position; the section being taken on the line 3—3 of Fig. 6 and looking in the direction of the arrows at said line.

Fig. 4 is a like view of the same showing the parts as they are disposed when the anti-rebound latch is released and before the type bar actuating lever has been operated.

Fig. 5 is a horizontal sectional view of the same

parts, the section being taken on the line 5—5 of Fig. 3 and looking in the direction of the arrows at said line.

Fig. 6 is a like sectional view taken on the line 6—6 of Fig. 4 and looking in the direction of the arrows at said line.

The invention is shown in the present instance embodied in a type action of a No. 10 Remington Noiseless machine in which the devices of said invention may be readily incorporated without modifying or materially modifying the existing structural features thereof. It should be understood, however, that the invention is not restricted to embodiment in such machines but may be used in typewriting and like machines generally wherever found available.

There is disclosed in the accompanying drawings only a single type action, that being sufficient to arrive at an understanding of the invention in its combination therewith. Such type actions are disclosed in the patent to Going No. 1,573,544 dated Feb. 16, 1926.

In the present instance we have dispensed with the anti-rebound devices disclosed in the Going Patent No. 1,604,640 dated Oct. 26, 1926 which have been employed in the No. 6 and No. 10 Remington Noiseless machines and have substituted therefor the anti-rebound devices of the present invention.

The type actions per se are, or may be, of the usual construction and will first be described.

Referring to Fig. 1, it will be observed that each type bar 10 carries four types 11, 12, 13 and 14 and is pivotally supported on guide links 15 and 16. The lower end of the link 16 is pivoted at 17 on arm 18 adjustably secured to a supporting bracket 19. The lower end of this link 15 is pivoted at 20 to a bellcrank lever 21 pivoted at 22 to the supporting bracket 19. The other arm of the lever 21 is pivoted to a link 23 which in turn is pivotally connected to a sub-lever 24 pivoted at 25 to the bracket 19.

The actuating means for the type bar in the present instance comprises the usual toggle members 26 and 27 pivotally united at 28. The toggle member 27 is pivoted at 30 to the supporting bracket 19.

A second toggle comprises an arm or member 31 and a pivotally connected actuating lever 32, the arm 31 being pivoted at 33 to the member 27 of the first toggle. The lever 32 comprises two matched side members fixedly united and maintained spaced apart and arranged on opposite sides of the bracket 19, as shown in Figs. 5 and 6. A weight or momentum accumulator 34 is in the

present instance fixed to and forms an extension of the toggle member 21.

The actuating lever 32 is pivoted at 35 on the supporting bracket 19 and is in the nature of a bellcrank lever having on the substantially horizontally disposed arm thereof a curved contact face 36. This contact face is of sufficient width to coact with the curved contact edge of the sub-lever 24 and also to contact with a curved contact edge of a second corresponding sub-lever 27. The sub-lever 26 has a depending link 38 pivoted thereto which link in turn is pivoted at its lower end, as at 39, to a key lever 40. In a like manner a depending link 38^a constitutes a connection between the sub-lever 27 and a second key lever 41.

Each key lever 40 and 41 has a returning spring 42 connected thereto, whereas a single returning spring 43 is anchored at one end to the bracket 19 and is connected at its other end to a pin 44 by which a universal-bar actuating-yoke 45 is pivoted to the actuating lever 32. The spring 43 is effective to return the lever 32 and the parts connected therewith to normal position.

In the operation of the type action a depression of the key lever 41 will actuate the sub-lever 27 causing a straightening of the toggle 23, 27 at which time the links 15 and 13 will turn on their respective pivots 20 and 17; the bellcrank 21 at this time remaining fixed. The effect of this is to produce a noiseless pressure imprint from one or another of the types 13, 14 depending on whether the platen P is in the upper or lower case position.

If on the other hand the key lever 40 is depressed then the type bar will be actuated as before except that the actuation of the sub-lever 24 will cause the bellcrank 21 to be shifted thereby lowering the pivot 20 and causing the type bar to take a different path of travel to print from one of the types 11, 12 depending on the position of the platen.

It will be understood that the disposition of the parts and the curved contact edges of the sub-levers 24 and 27 coacting with the curved contact 36 afford a varying leverage and high acceleration of the actuating lever 32 and type bar in the printing operation, as is usual in the No. 10 Remington Noiseless machine.

We will now describe the means of the present invention which in the return movement of each type action to normal position will prevent rebound of the parts from such normal position of arrest.

The anti-rebound latch or device 46 of the present invention is preferably in the nature of a bellcrank lever one arm of which has an engaging nose 47 normally positively engaging a relatively fixed portion of the machine, such as the engaging member 48 on the bracket 19, as best shown in Fig. 3. The latch 46 is pivoted at 49 on the horizontally disposed arm of the type bar actuating lever 32, and between the matched side members thereof, for movement with said lever and for independent movement thereon. The end 46^a of the horizontally disposed arm of the latch 46 remains in contact at all times with the curved contact face 36.

In prior structures the contact face or member 36 was fixedly connected to the actuating lever 32. In the present structure, however, the member 36 is pivoted to said lever at 50, for a limited independent movement thereon, the pivot 50 passing through bearing openings in depending ears 50^a on the member 36. Thus, from

a consideration of Figs. 3, 4 and 5 it will be understood that the member 36 overlaps the matched side members of the horizontally disposed arm of the actuating lever 32 and is limited thereby in its independent downward movement from the Fig. 3 to the Fig. 4 position. On the other hand the member 36 is limited in its upward independent movement from the Fig. 4 to the Fig. 3 position by a downwardly and forwardly turned end 36^a thereon engaging a stop pin 51 which is employed as one of the connecting members which unite the guide members of the lever 32.

A contractile spring 52 is connected at one end to the latch 46 and is connected at its other end to the pivot pin 50 of the member 36. The force of this spring is exerted to move the latch 46 to engaging position and to elevate the member 36, as shown in Fig. 3; it being understood that the upright arm of the latch extends through a slot 36^b in the member 36. When in the normal position, the engagement of the latch 46 with the bracket at 49 positively locks the lever 32 and the parts connected therewith against rebound from such position. When however, either key lever 40 or 41 is depressed the corresponding sub-lever 24 or 27 will be actuated. The first part of the movement of such sub-lever is effective to bring about an independent movement of the member 36 from the Fig. 3 to the Fig. 4 position, thereby first releasing the latch 46 from engagement with the bracket. A further movement of such sub-lever is effective to actuate the lever 32 and the parts connected therewith. The latch 46 will, of course, be retained in its released position until the type action returns to normal position and the actuated sub-lever 24 or 27 releases its pressure on the member 36, as shown in Fig. 3. Then the latch is effective to automatically lock the lever 32 and the parts connected therewith against rebound.

From the foregoing description it will be understood that the member 36 not only constitutes an engaging surface with which the sub-levers 24 and 27 coact to actuate the lever 32 but also constitutes an automatically operated latch releasing device for releasing the latch 46 from its engagement with the bracket.

In order to limit the movement of the lever 32 and the parts connected therewith to normal position there is provided on the bracket 19 a depending stop projection 19^a, the end of which preferably engages the member 36 over or forward of its pivot 50. When the parts return to the normal Fig. 3 position the stop 19^a arrests the movement of the lever 32 and the parts connected therewith, without however, interfering with the independent movement of the latch releasing device 36 to its normal position. In fact when the stop 19^a is located to coact with the member 36 slightly forward of its pivot 50 the returning spring 43 will aid in effecting the independent movement of the member 36 to the Fig. 3 position.

It will be understood that the use of the anti-rebound latch 46 offers but little additional resistance to the printing operation of the type action; it merely being necessary to overcome the force of the light spring 52, and that only during the slight movement of the latch from the position shown in Fig. 3 to that shown in Fig. 4. It will be understood moreover, that this slight resistance of the spring 52 takes place at the initial portion of the key depression and before the actuating lever 32 and the parts controlled there-

by are set in motion and at a time when the resistance of the returning spring 43 is not exerted against the key depression. Therefore, a light touch on the keys is provided, especially at the initial portion thereof when such light touch is most desirable.

It will be understood that each type action and its associated anti-rebound means in the machine is such as has been described and that by the use of said anti-rebound means there is an avoidance of collision between different adjacent and closely arranged type locks during the operation of the machine, which collision is apt to occur in the event that no anti-rebound means are provided.

By our present invention we are enabled to provide simple, inexpensive and effective means for attaining the results pointed out and which means may be incorporated in existing type actions without materially altering the existing structural features thereof.

While we have described in detail one form of anti-rebound means embodying our invention in its cooperation with one form of type action, it should be understood that various changes may be made without departing from our invention as it is defined in the accompanying claims.

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

1. In a typewriting machine, the combination of a type action comprising a type bar, two printing keys and means controlled thereby for moving said type bar in different paths depending on which of the printing keys is actuated; and means for preventing a rebound of the type bar from its position of rest comprising a single normally engaged latch, and automatically operating means controlled by said printing keys during initial movement thereof from normal position for releasing said latch before the type bar is actuated by either of said printing keys.

2. In a typewriting machine, the combination of a type action comprising a type bar, two printing keys and means controlled thereby for moving said type bar in different paths depending on which of the printing keys is actuated; and means for preventing a rebound of the type bar from its position of rest comprising a single latch carried by a part of the type action and normally engaging a relatively fixed part of the machine, and automatically operating means controlled by said printing keys during initial movement thereof from normal position for releasing said latch before the type bar is actuated by either of said printing keys.

3. In a typewriting machine, the combination of a type action including a printing key, a type bar, and a type bar actuating member having an initial lost motion connection with said printing key; and means for preventing a rebound of the type bar from its position of rest comprising a latch carried by said actuating member and normally engaging a relatively fixed part of the machine, a spring acting directly on said latch for bringing the latch into such engagement, and positively operating means controlled by said printing key during initial movement thereof from normal position for releasing said latch from such engagement before the actuating member is actuated by the depression of an associated printing key.

4. In a typewriting machine, the combination of a type action including a printing key, a type bar, and a type bar actuating member; and means for preventing a rebound of the type bar

from its position of rest comprising a latch carried by said actuating member and normally engaging a relatively fixed part of the machine, a spring for bringing the latch into such engagement, a latch releasing member carried by and movable on said actuating member and cooperative with said latch to release it, and means controlled by said printing key for first actuating said releasing member to release the latch and for then actuating said actuating member to move the type bar.

5. In a typewriting machine, the combination of a type action comprising a type bar, two printing keys, and controlling means controlled thereby for moving said type bar in different paths depending on which of the printing keys is actuated, said controlling means comprising a type bar actuating member controlled by both of said printing keys; and means for preventing a rebound of the type bar from its position of rest comprising a single latch carried by said actuating member and normally engaging a relatively fixed part of the machine, and automatically operating means controlled by the initial movement of either of said printing keys from normal position for releasing said latch before the type bar is actuated by either of said printing keys.

6. In a typewriting machine, the combination of a type action comprising a type bar, two printing keys, and controlling means controlled thereby for moving said type bar in different paths depending on which of the printing keys is actuated, said controlling means comprising a type bar actuating member controlled by both of said printing keys; and means for preventing a rebound of the type bar from its position of rest comprising a single latch carried by said actuating member and normally engaging a relatively fixed part of the machine, a latch releasing member carried by and movable on said actuating member and cooperative with said latch to release it, and means controlled by both of said printing keys for first actuating said releasing member to release the latch and for then operating the actuating member to move the type bar.

7. In a typewriting machine, the combination of a type action comprising a type bar, two printing keys, and controlling means controlled thereby for moving said type bar in different paths depending on which of the printing keys is actuated, said controlling means comprising a type bar actuating member controlled by both of said printing keys; and means for preventing a rebound of the type bar from its position of rest comprising a single latch carried by said actuating member and normally engaging a relatively fixed part of the machine, a latch releasing member carried by and movable on said actuating member and cooperative with said latch to release it from such engagement, a spring cooperative with the latch to bring about its engagement, and means controlled by both of said printing keys for first actuating said releasing member to release the latch and for then operating the actuating member to move the type bar.

8. In a typewriting machine, the combination of a type action including a printing key, a sub-lever controlled thereby, and a type bar actuating lever actuated by said sub-lever; and means for preventing a rebound of the type bar from its position of rest comprising a latch carried by and movable on said actuating lever, and a latch releasing device carried by said actuating lever and movable therewith and having an independent

movement thereon and with which said sub-lever coacts to first move the releasing device to release the latch and then to move the releasing device and actuating lever to actuate the type bar.

9. In a typewriting machine, the combination of a type action including a printing key, a sub-lever controlled thereby, and a type bar actuating lever actuated by said sub-lever; and means for preventing a rebound of the type bar from its position of rest comprising a latch carried by and movable on said actuating lever, a latch releasing device carried by said actuating lever and movable therewith and having an independent movement thereon and with which said sub-lever coacts to first move the releasing device to release the latch and then to move the releasing device and actuating lever to actuate the type bar, and spring means for returning said latch and latch releasing device to normal position on said actuating lever.

10. In a typewriting machine, the combination of a type action including two printing keys, two sub-levers actuated thereby, and a single actuating lever actuated by both of said sub-levers; and means for preventing a rebound of the type bar from its position of rest comprising a latch carried by and movable on said actuating lever, and a latch releasing device carried by said actuating lever and movable therewith and having an independent movement thereon and with which both of said sub-levers coact to first move the releasing device to release the latch and then to move the releasing device and actuating lever to actuate the type bar.

11. In a typewriting machine, the combination of a type action including two printing keys, two sub-levers actuated thereby, a type bar, and a single type bar actuating lever; and means for preventing a rebound of the type bar from its position of rest comprising a latch carried by and movable on said actuating lever, a latch releasing device carried by and limitedly movable on said actuating lever and operable by either of said sub-levers to first release the latch and then move the actuating lever, and spring means for returning said latch and latch releasing device to normal position on said actuating lever.

12. In a typewriting machine, the combination of a type action comprising a printing key, a sub-lever actuated thereby, a type bar, a type bar actuating lever actuated by said sub-lever, and a bracket on which said type bar, sub-lever and actuating lever are supported; and means for preventing a rebound of the type bar from its position of rest comprising a latch carried by said actuating lever and normally engaging a part of said bracket, and a latch releasing device operable by said sub-lever and successively engageable with said latch and actuating lever to first release said latch and then move the type bar actuating lever.

13. In a typewriting machine, the combination

of a type action comprising two printing keys, two sub-levers actuated thereby, a type bar, a type bar actuating lever actuated by said sub-levers, and a bracket on which said type bar, sub-levers and actuating lever are supported; and means for preventing a rebound of the type bar from its position of rest comprising a single latch carried by said actuating lever and normally engaging a part of said bracket, and a latch releasing device operable by both of said sub-levers and successively engageable with said latch and actuating lever to first release said latch and then move the type bar actuating lever.

14. In a typewriting machine, the combination of a type bar, an actuating lever therefor, and a key actuated lever which coacts with said actuating lever; and means for preventing a rebound of the type bar from its position of rest comprising a latch pivoted on said actuating lever for movement therewith and for independent movement thereon, and a latch releasing device pivoted on said actuating lever for movement therewith and for independent movement thereon, said releasing device being acted on by said key actuated lever to first effect an independent movement of the releasing device to release said latch and then to move the releasing device and actuating lever together to operate the type bar.

15. In a typewriting machine, the combination of a type bar, an actuating lever therefor, and a key actuated lever which coacts with said actuating lever; and means for preventing a rebound of the type bar from its position of rest comprising a latch pivoted on said actuating lever for movement therewith and for independent movement thereon, and a latch releasing device pivoted on said actuating lever for movement therewith and for independent movement thereon, said key actuated lever and latch releasing device having curved coacting contact faces or treads which afford a variation in the leverage between the key actuated lever and the type bar actuating lever during the operation thereof.

16. In a typewriting machine, the combination of a type bar, an actuating lever therefor; and two key actuated levers which coact with said actuating lever; and means for preventing a rebound of the type bar from its position of rest comprising a single latch pivoted on said actuating lever for movement therewith and for independent movement thereon, and a latch releasing device pivoted on said actuating lever for movement therewith and for independent movement thereon, said releasing device being acted on by either one or the other of said key actuated levers at will to first effect an independent movement of the releasing device to release said latch and then to move the releasing device and actuating lever together to operate the type bar.

GEORGE K. HOWLAND.
OTTO E. HULTGREN.