

1,062,266.

F. A. YOUNG.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 24, 1911.

Patented May 20, 1913.

3 SHEETS—SHEET 1.

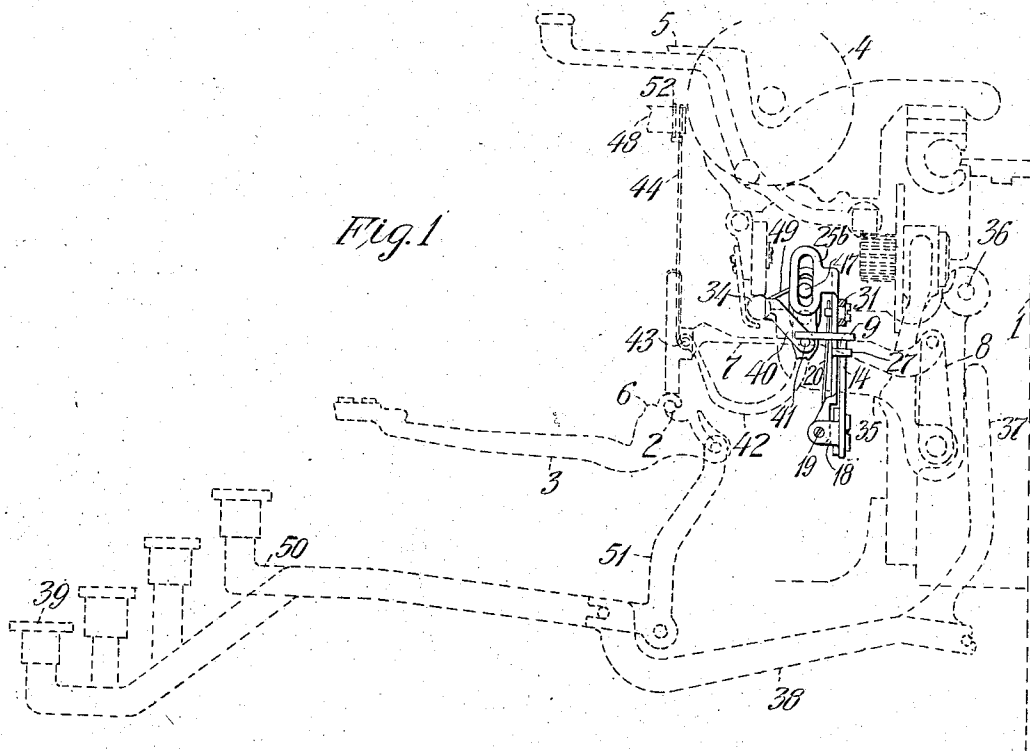


Fig. 2

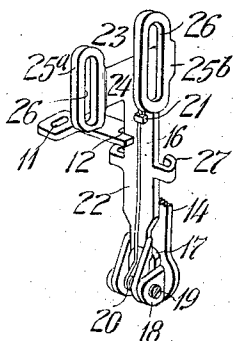
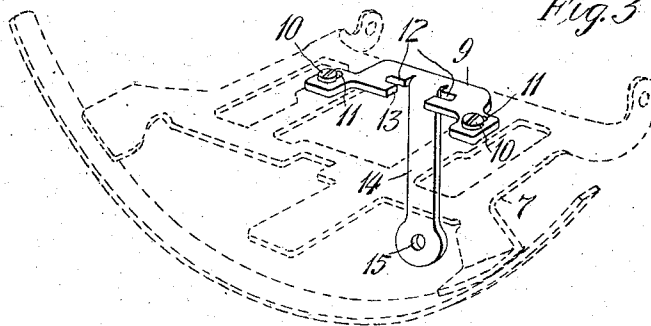


Fig. 3



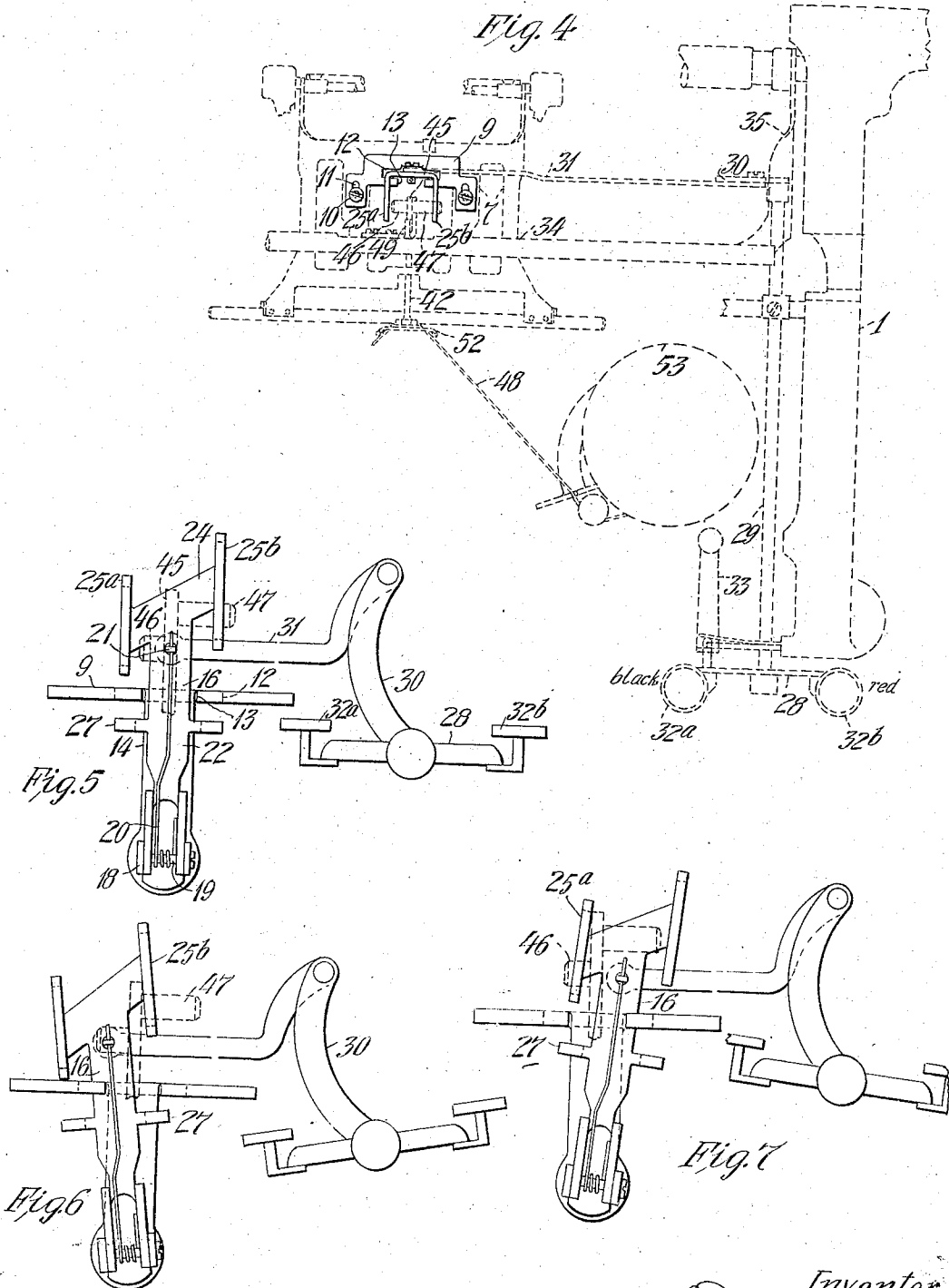
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3 SHEETS-SHEET 2.



Witnesses,
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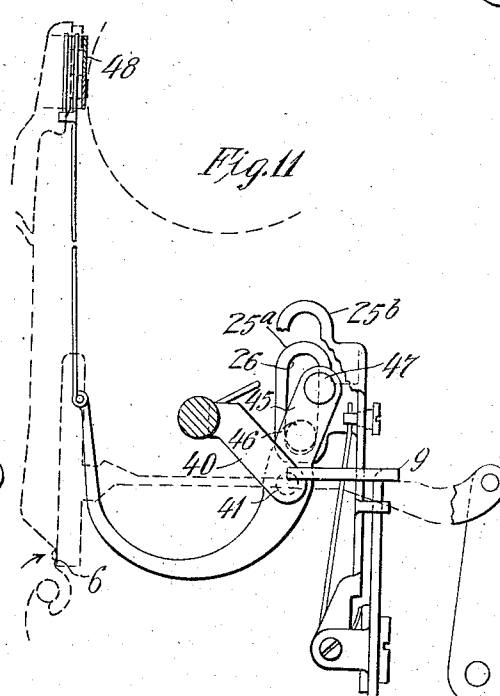
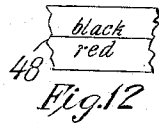
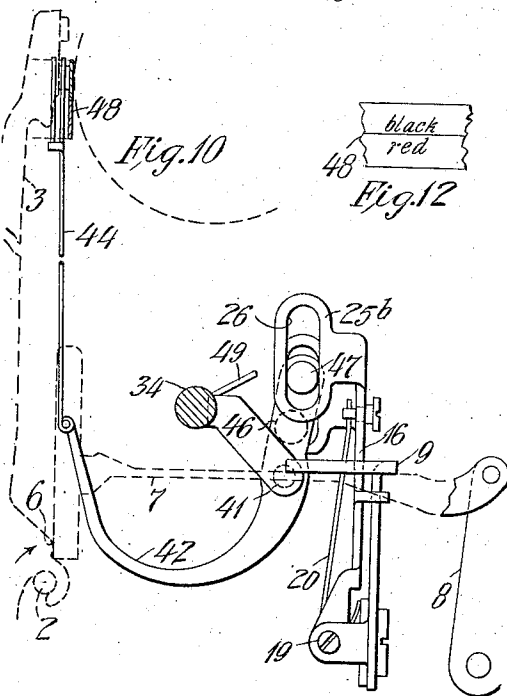
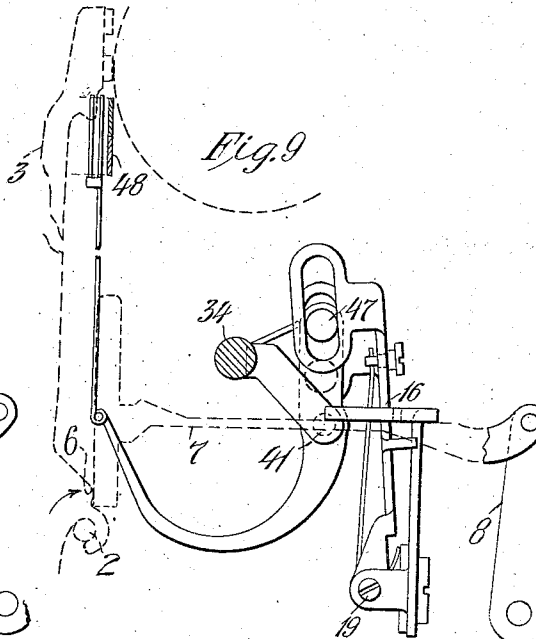
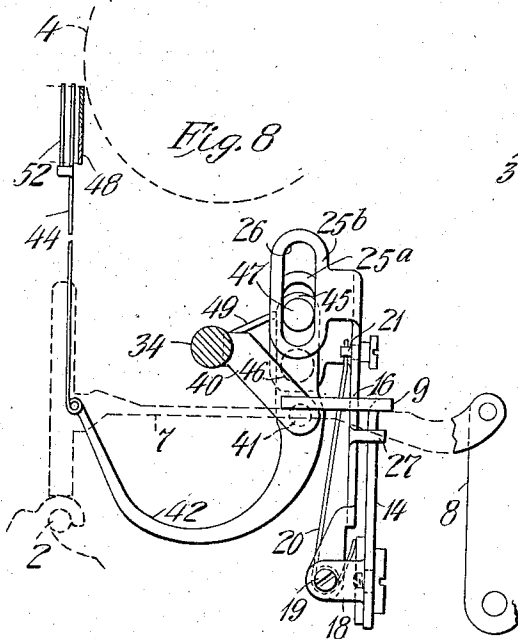
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

FRANK A. YOUNG, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,062,266.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed January 24, 1911: Serial No. 604,308.

To all whom it may concern:

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

This invention relates to typewriting machines, and particularly to such machines as are adapted for forming stencils and which usually have bichrome ribbon mechanism. In machines of this class of the Underwood type, there is a ribbon vibrator which is in intimate relation with the universal bar, and the vibrator is controlled by an actuator having different positions giving the necessary amount of movement of the ribbon to bring it under the striking type, in using the different colors. When the machine is being used for stenciling, it is necessary to prevent or "silence" this movement of the ribbon so that the type may strike directly upon the stencil.

The object of this invention is to improve the construction of the parts for forming the connection between the universal bar and the actuator, which will permit the different necessary movements of the ribbon when writing different colors, and also to provide a construction which enables the ribbon mechanism to be silenced as suggested; the arrangement is such that the universal bar may advance without causing the actuator to vibrate the ribbon.

In the accompanying drawings, Figure 1 is a diagrammatic view, showing parts of the actuating mechanism of a typewriter, and showing particularly the point at which my improvement is applied, said improvement being shown in full lines and partially in section. Fig. 2 is a perspective of the actuator constructed according to my invention, showing part of the universal bar broken away. Fig. 3 is a perspective, showing the universal bar in dotted outline, and showing a keeper plate by means of which the actuator is connected therewith. Fig. 4 is a plan, showing the right hand portion of a typewriter in dotted outline, certain parts being broken away, and showing my improvement in full lines. This view further illustrates the manner of applying the invention to the machine. Fig. 5 is a front elevation showing the actuator, certain parts

being broken away; this view shows the actuator in its mid-position in which the ribbon is silenced. Fig. 6 is a view similar to Fig. 5, but showing the actuator in the position which adapts the machine to write on one field, that is, the black field or stripe of the ribbon. Fig. 7 is a view similar to Fig. 6, but showing the actuator in the opposite position, and adapting the machine to write in red. Fig. 8 is a side elevation of the actuator showing its construction more in detail, and showing its relation to the universal bar and the platen. This view shows the universal bar and other parts in their normal position. Fig. 9 is a view similar to Fig. 8, but showing the type bar in dotted lines in the act of striking, and illustrating how the forward movement of the universal bar may leave the actuator unaffected, to silence the ribbon. Fig. 10 is a side elevation similar to Fig. 8, but showing the actuator in the position which adapts the machine to write on the upper stripe of the ribbon; this view shows a type bar in dotted outline, in its striking position, and illustrates how the movement of the universal bar normally actuates the vibrator to raise the ribbon to the proper height. Fig. 11 is a view similar to Fig. 10, but showing the mechanism adapted to write on the lower or red stripe of the ribbon. In this view certain parts are broken away so as to illustrate more fully the mode of operation of the mechanism. Fig. 12 is a front elevation, showing a short portion of the ribbon to indicate the relation of the different color fields or stripes.

Referring particularly to Figs. 1 and 4, 1 represents the typewriter frame, which is indicated in dotted lines. At the usual point in this frame, a segment is mounted having a pivot bar 2 upon which the type bars 3 swing upwardly to come against the face of the platen 4, said platen being of the usual construction, and supported in the usual manner in a platen frame 5. The type bars 3 are provided with the usual heels 6, which are adapted to engage with the universal bar 7 and drive the same rearwardly when the type are in action, the rear end of the universal bar being supported on a suitable rocker 8 in the usual manner, enabling the universal bar to have a limited reciprocating movement when the types are actuated.

In applying my invention, I provide a keeper or connector-plate 9 which is attached to the upper side of the universal bar by set screws 10 passing through adjusting-slots 11, and this keeper-plate is
 5 formed with a longitudinal slot 12, which extends transversely to the direction of movement of the universal bar when it reciprocates. The forward edge of this
 10 keeper-plate is cut away so as to form a gap or throat 13, and the material of the plate at the rear edge of the slot 12 is struck downwardly, so as to form a downwardly extending tongue 14, as shown.

Referring now particularly to Figs. 2 and 5 to 7. Just in front of the tongue 14, I attach an actuator 16 by means of a swivel-head 17 attached in a pivot-opening 15
 15 formed in the lower end of tongue 14. This swivel-head 17 has ears 18 to which the lower end of the actuator is attached on a suitable pivot-pin 19, as shown. Around the
 20 pivot pin 19, a spring 20 is mounted, and this spring extends up the forward face of the actuator, and is secured in a pin 21, so that the spring tends to throw the actuator
 25 forwardly in the machine, which would rotate it on the pivot 19. The body of the actuator 16 is in the form of a vertically elongated plate 22, and this plate extends
 30 up and normally lies in the slot 12. Above the slot the plate 22 is formed into an actuator head 23. In order to form this head, a short inclined cross-bar 24 is formed at
 35 the upper end of the actuator, and the ends of this bar are bent laterally to form guide ears 25^a and 25^b, which are vertically elongated and have vertical elongated slots 26
 formed therein, as shown.

On the plate 22 at the side edges thereof, laterally bent fingers 27 are formed, which may engage the edges of the tongue 14, so
 40 as to prevent the plate 22 from swinging forwardly, that is, one of them engages the rear side of the tongue when the ribbon is not silenced. In this connection, it should
 45 be understood that when the actuator 16 is held in one end of the slot 12, the mechanism is adapted to write on one field of the ribbon, and when in the other end of the
 50 slot 12, the machine is adapted to write on the other field.

As shown in Fig. 6, the actuator adapts the machine to write in black, and in this
 55 position the ear 25^b actuates the vibrator. As illustrated in Fig. 7, the ear 25^a actuates the vibrator. In order to control the position of the actuator in the slot 12 at the
 60 forward side of the machine, there is provided the usual cross-bar 28 which is attached to a rock-shaft 29, extending rearwardly, and this rock shaft is connected by an arm 30 with a link 31, said link being
 65 attached to the pin 21 on the actuator. The cross bar 28 has two keys 32^a and 32^b, the

former of which, when operated, adapts the machine to write black, and the latter of which, when operated, adapts the machine to write red. In connection with this cross-arm 28, there is provided the usual silencing
 70 lever 33 which coöperates with the cross arm and throws the actuator into its silencing position, that is, it throws the actuator 16 into its mid-position in which it is shown in Fig. 4.

Referring again to Fig. 1, 34 represents the shift-bar of the machine, which is mounted in the usual manner on shift
 75 frames 35 having fulcrums or pivots at 36, enabling the shift bar to be raised in the usual manner, through the operation of the upwardly extending arm 37 on the rocker
 80 38, and which is actuated by the shift key 39.

At a point opposite the actuator, the shift-bar 34 is provided with a bracket arm 40,
 85 which is inclined downwardly and rearwardly, as shown, and at the lower end of this arm a pivot pin 41 is provided which supports a ribbon lever 42, the body of which lever curves forwardly and upwardly,
 90 and is pivotally attached at 43 to the lower extremity of the vibrator 44. This lever has a short arm 45 which extends upwardly from the pivot 41, and is disposed between the ears 25^a and 25^b of the actuator. On
 95 the left side of this short arm 45, a short wrist-pin 46 projects toward the left, and in alinement with the slot in the ear 25^a. A similar wrist-pin 47 projects from the right side of this arm 45, and may pass
 100 through the slot in the ear 35^b. This arrangement is very clearly illustrated in Fig. 5, the parts being shown in the ribbon-silencing position.

When the actuator is in the position
 105 shown in Fig. 6, adapting the machine to write black, the actuator is thrown over to the left end of the slot 12, so that when the universal bar moves rearwardly by the action of the type bars, the actuator head also
 110 moves rearwardly. In this way the pin 47 will be moved rearwardly, and this rocks the ribbon lever 42 on its fulcrum pin 41 and raises the vibrator 44. This raises the ribbon 48 sufficiently to bring the black field
 115 of the ribbon on the striking face of the platen.

In the opposite position of the actuator, as shown in Fig. 7, the actuator occupies the right hand end of the slot 12, the actuator
 120 head being thrown toward the right so that the pin 47 is disconnected from the ear 25^b, and pin 46 introduced into the slot of the ear 25^a. When the parts are in this position, it will be evident that when the
 125 universal bar moves rearwardly in the typing movement of the machine, the actuator now imparts a moving force to the ribbon-lever 42 at the pin 46, which is nearer to the fulcrum pin 41 of the lever, and conse- 130

quently gives a greater movement of the ribbon lever in raising the ribbon. With this arrangement it should be understood that the actuator has two extreme positions in both of which it connects itself to the keeper-plate 9, which is virtually a part of the universal bar. The actuator at this time moves as though it were an integral part of the universal bar. However, as indicated in Figs. 4 and 5, when the actuator is in mid-position, the body or plate 22 thereof lies opposite to the gap or throat 13, and when the actuator is in this position it will be evident that the universal bar will move rearwardly without actuating the ribbon lever 42, for the spring 20 will tend to force the actuator forwardly, so that the actuator head remains practically stationary.

As indicated in Figs. 1 and 4, the shift bar 34 is provided at a suitable point with a projecting stop finger 49, against which the upper end of the lever 42 is normally held by the action of the spring 20. Special attention is called to this spring 20 for the reason that this spring has a special function in that it tends to hold the ribbon vibrator depressed when the ribbon is silenced.

The type bars 3 are actuated in the usual manner by type keys 50 which actuate rockers 51, as shown, and the ribbon 48 is guided through the ribbon-holder 52 passing between the ribbon spools 53 in the usual manner.

Attention is called to the slots 11 in the keeper plate 9, and to the fact that they are elongated in the direction of movement of the universal bar. This arrangement enables the keeper-plate to be adjusted with great nicety with respect to the universal bar, so as to control accurately the position of the vibrator.

Special attention is called to the fact that though the pin 47 operates as an actuating wrist for the ribbon lever, it is only disconnected from the slot of the ear 25^b when the wrist 46 is in its slot. It is not disconnected in the silencing position of the actuator. This is possible on account of the fact that the actuator in this position is not moved by the universal bar, and consequently it does not affect the vibrator. This arrangement is most advantageous, as the pin 47 acts as a guide in assuring a proper alinement of the pin 46 in moving in and out of the slot of the ear 25^a. In this way I accomplish the result of virtually disconnecting the actuator from the universal bar as far as the transmission of any effective movement to it is concerned, and yet I do not actually disconnect the parts, and preserve their alinement.

The function of the fingers 27 on the plate 22 of the actuator is to steady the

movement of the actuator by the plate 9, because it will be seen that the plate itself engages the edge of the actuator only on one side, that is, at one end of the slot 12. By providing these fingers, the slot engages the actuator on one edge of the plate 22, and the fingers engage it on the opposite edge, so that a more perfect locking of the parts is attained.

The general mode of operation of the device will be briefly stated.

In adapting the machine for stenciling, the actuator is in its mid-position opposite the throat or gap 13 of the slot 12, so that when the universal bar moves rearwardly the actuator is not affected except to rotate slightly at its pivot pin 19. This pivot pin moves forwardly but the upper portion of the actuator remains held against the stop 49 by reason of the spring 20, and hence the ribbon lever will not be actuated.

In the position of the actuator shown in Fig. 6, the actuator is disengaged from the pin 46 and engages solely with the pin 47, so that this pin 47 actuates the vibrator, giving it a short movement which brings the black band of the ribbon up to the striking face of the platen.

In the position shown in Fig. 7, the actuator engages the pin 46 solely so that this pin acts as the actuating pin for the ribbon lever, giving it a longer stroke for the reason that this pin is nearer to the fulcrum pin 41 of the ribbon lever.

It will be evident that the actuation of the shifting bar by the shifting lever does not affect the operativeness of my silencing devices, for the reason that when the shift bar 34 is raised the slots 26 permit an upward movement of the pins 46 and 47 with relation to the actuator ears 25^a and 25^b. And no difference in the amount of movement of the actuator takes place after being shifted, as suggested, because, although the pins are more elevated, the fulcrum pin 41 is also elevated an equal amount.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination of a universal bar, a ribbon vibrator, an actuator constantly engaging said vibrator and connected to said universal bar, means for locking said actuator to said universal bar in different positions adapted to give said vibrator different movements respectively, and means for holding said actuator in a position adapted to leave said vibrator unaffected by the movement of said universal bar, substantially as set forth.

2. In a typewriting machine, the combination of a universal bar, a vibrator, a ribbon lever connected with said vibrator, an actuator connected to said universal bar and having a head adapted to assume different positions in engagement with said lever

give said vibrator a different amount of movement, and means for holding said actuating head in a released position with respect to said universal bar to permit the actuation of said universal bar without effectively moving said actuator.

3. In a typewriting machine, in combination, a universal bar, a vibrator, a lever connected to said vibrator having a pair of wrists at different distances from the pivot point of said lever and adapted to give said vibrator a different amount of movement, and an actuator mounted on said universal bar adapted to shift laterally so as to engage either of said wrists separately, said actuator being arranged so that it normally advances with said universal bar, said actuator having a position in which it releases itself from said universal bar and in which the connection of one of said wrists is maintained.

4. In a typewriting machine, in combination, a universal bar, a vibrator, a ribbon lever connected to said vibrator and having actuating wrists adapted to give said lever different amounts of movement, an actuator connected with said universal bar, and means for holding said actuator in engagement with one only of said wrists, said actuator connection enabling the universal bar to move without effecting the movement of said lever.

5. In a typewriting machine, in combination, a universal bar, a vibrator, a ribbon lever connected to said vibrator, an actuator adapted to engage said lever at different points so as to produce a different amount of movement thereof, means for holding said actuator in a position to lock the same to said universal bar so as to advance with said universal bar when said universal bar is actuated, and means for holding said actuator in a releasing position to be released from said universal bar when it advances, said actuator and said lever being maintained in connection with each other when said actuator is in its releasing position.

6. In a typewriting machine, in combination, a universal bar, a vibrator, a lever connected to said vibrator and having an arm with wrists thereupon adapted to give said vibrator a different amount of movement, an actuator having a pivot connection with said universal bar, means for moving said actuator back and forth on said pivot connection to lock the same to said universal bar and simultaneously to engage said wrists respectively, and means for holding said actuator in a position in which it is unlocked from said universal bar to permit the advance of said universal bar without actuating said lever.

7. In a typewriting machine, in combination, a universal bar having a plate with a slot therein disposed transversely to the di-

rection of movement of said universal bar, an actuator pivotally supported on said universal bar and normally passing through said slot, a vibrator, a lever connected therewith, said lever and said actuator being adapted to form connections when said actuator is at the opposite ends of said slot, said slot having a releasing gap in the side thereof, and means for holding said actuator opposite to said releasing gap to permit the actuation of said universal bar without affecting said lever.

8. In a typewriting machine, in combination, a universal bar having a plate with a slot therein disposed transversely to the direction of movement of said universal bar, an actuator pivotally supported on said universal bar and normally passing through said slot, a vibrator, a lever connected therewith, said lever and said actuator being adapted to form connections when said actuator is at the opposite ends of said slot, said slot having a releasing gap in the side thereof, means for holding said actuator opposite to said releasing gap to permit the actuation of said universal bar without affecting said lever, and resilient means for detaining said actuator when said universal bar is actuated.

9. In a typewriting machine, in combination, a universal bar, a vibrator, a lever connected to said vibrator, an actuator pivotally connected with said universal bar, said universal bar having a guide slot normally receiving said actuator and adapted to lock said actuator thereto, so as to advance there-when said actuator is at the ends of said slot, said slot having a releasing gap near the middle thereof permitting the release of said actuator, said lever having wrists on opposite sides thereof for moving said vibrator different amounts, said actuator having an extension adapted to connect respectively with said wrists when said actuator is at the ends of said slot.

10. In a typewriting machine, in combination, a universal bar, a vibrator, a ribbon lever connected to said vibrator and having two actuating wrists to give said vibrator a different amount of movement, and an actuator pivotally connected with said universal bar and having a limited lateral movement to enable said actuator to engage either of said actuating wrists independently of the other, said universal bar being normally adapted to advance said actuator to move said lever, and having a releasing gap through which said actuator may pass to permit the movement of said universal bar without actuating said lever.

11. In a typewriting machine, in combination, a vibrator, a lever connected therewith, an actuator having a lateral movement adapted to form connections with said lever at different points to produce a different

amount of movement thereof, a universal bar for moving said actuator when the type key is struck, said actuator and said universal-bar having a releasing position to enable said universal bar to advance without moving the actuator, one of said connections between said actuator and said lever being maintained in said releasing position.

12. In a typewriting machine, in combination, a universal bar, a vibrator, a ribbon lever connected to said vibrator, an actuator pivotally connected with said universal bar at a depressed point, said universal bar having a plate, said plate having a slot receiving said actuator and adapted to lock said actuator to said universal bar when said actuator is laterally displaced, said slot having a releasing gap in the side thereof through which said actuator may pass, means for holding said actuator opposite said gap, said lever and said actuator being adapted to form connections at different points in the different extreme positions of said actuator, and a spring to force said actuator through said gap and operating to hold said vibrator depressed when said universal bar advances with said actuator in its releasing position.

13. In a typewriting machine, in combination, a universal bar comprising a keeper plate having a transverse slot therein and having a downwardly extending tongue, a vibrator, a lever connected to said vibrator, an actuator pivotally attached to said tongue and normally passing upwardly through said slot, means for shifting said actuator and holding the same in the ends of said slot, said lever and said actuator having means for forming connections when said actuator is at the ends of said slot, said slot having a gap near the middle thereof, and a spring tending to force said actuator through said gap to permit said universal bar to advance without effectively moving said actuator.

14. In a typewriting machine, the combination with a vibrating lever and a ribbon holder, of a universal bar, an actuator, means for locking said actuator to said universal bar and for unlocking it, a spring tending to hold said vibrating lever idle in its released position, and an abutment against which said spring presses the vibrating lever.

15. In a typewriting machine, the combination with a vibrating lever and a ribbon holder, of a universal bar, an actuator, means for locking said actuator to said universal bar and for unlocking it, a spring tending to hold said vibrating lever idle in its released position, a platen shift mechanism, an arm moving the vibrating lever with said platen shift, and an abutment moving with said platen shift against which said spring presses said vibrating lever.

16. In a typewriting machine, the combination with a vibrating lever and a ribbon holder, of a universal bar, an actuator pivoted on said universal bar, means for locking said actuator to said universal bar and for unlocking it, and a spring tending to hold said vibrating lever idle against an abutment.

17. The combination in a typewriting machine with a ribbon vibrating lever vibrating in one plane, of a universal bar vibrating in one plane, an actuator constantly engaging both universal bar and vibrating lever, and means for altering the throw of said lever, by shifting said actuator transversely of its plane of vibration, said actuator also being removable into position to permit the universal bar to vibrate independently of the said lever.

18. In a typewriting machine, the combination with a universal bar, of a ribbon vibrator, an actuator supported by the vibrator and having a universal pivotal connection to the universal bar, permitting the actuator to swing idly as said bar is vibrated, and a ledge on the universal bar, said pivotal connection permitting the actuator to be swung transversely, and catch under said ledge and lock the actuator to the universal bar.

19. In a typewriting machine, the combination with a universal bar, of a ribbon vibrator, an actuator for said vibrator constantly engaged with it and permanently supported by said bar, means for locking said actuator to said bar, and means for unlocking it.

20. In a typewriting machine, the combination with a universal bar, of a ribbon actuator pivoted thereon to swing in two planes and a ribbon vibrator operated by the movement of the actuator in one plane, and having its amplitude of vibration controlled by the movement of the actuator in the other plane.

21. In a typewriting machine, the combination of a ribbon vibrator, an actuator therefor, and a universal bar, the actuator being carried by said bar and movable relatively thereto into and out of position to be actuated by the bar.

22. In a typewriting machine, the combination of a ribbon vibrator, an actuator therefor, a universal bar to which said actuator is pivoted, and means to move the actuator into and out of position to be operated by said bar.

23. In a typewriting machine, the combination of a ribbon vibrator, an actuator therefor, a universal bar to which said actuator is pivoted, and a key lever connected to the actuator for adjusting it to operative and inoperative positions relatively to the universal bar.

24. In a typewriting machine, the com-

bination of a ribbon vibrator, an actuator therefor, a universal bar to which said actuator is pivoted, and means to lock the actuator to the said bar.

25. In a typewriting machine, the combination of a ribbon vibrator, an actuator therefor, a universal bar, the actuator being carried by said bar and movable relatively thereto to permit the bar to operate independently of the vibrator, and means to prevent said relative movement.

26. In a typewriting machine, the combination of a ribbon vibrator, an actuator therefor, a universal bar, the actuator being carried by said bar and movable relatively thereto into and out of interlocking engagement with the said bar, and means to prevent motion being transmitted through the actuator to the vibrator while the actuator is out of said interlocking engagement.

27. In a typewriting machine, the combination of a ribbon having different color fields, a vibrator, an actuator therefor adjustable to different positions relatively to the vibrator to cause the latter to bring different color fields within the printing zone, and a universal bar carrying said actuator, and permitting the universal bar to vibrate independently of the actuator when the latter is in one position of adjustment.

28. In a typewriting machine, the combination of a permanently connected ribbon vibrator, actuator and universal bar, said actuator being adjustable relatively to the bar to control the relative motion of the bar and actuator and thereby control the transmission of motion from the bar to the ribbon vibrator; said actuator also being adjustable into position to prevent motion being transmitted from the universal bar to the vibrator.

29. In a typewriting machine, the combination of a permanently connected ribbon vibrator, actuator and universal bar, said actuator being movable into and out of position to be operated by the universal bar.

30. In a typewriting machine, the combination of a permanently connected ribbon vibrator, actuator and universal bar, and means to adjust the actuator relatively to the universal bar, and thereby either vary the amplitude of vibration of the ribbon vibrator or silence the ribbon vibrator.

31. In a typewriting machine, the combination of a ribbon vibrator, a permanently connected actuator and universal bar, said actuator being adjustable relatively to the bar to control the relative motion of the bar and actuator and thereby either control the transmission of motion from the bar to the ribbon vibrator or silence the ribbon vibrator.

32. In a typewriting machine, the combination of a ribbon vibrator, and a permanently connected actuator and universal

bar, said actuator being movable into and out of position to be operated by the universal bar.

33. In a typewriting machine, the combination of a ribbon vibrator, an actuator having connections with the vibrator, one of which is always in effective or operative position, and a universal bar frame: said actuator being operatively connected to and adjustable relatively to the universal bar frame into and out of position to transmit motion from the universal bar frame to the vibrator.

34. In a typewriting machine, the combination of a ribbon vibrator, an actuator, means forming at all times an operative connection between the actuator and vibrator, and a universal bar, said actuator being carried by the said bar and movable thereon into and out of position to form an operative connection between the bar and vibrator.

35. In a typewriting machine, the combination of a ribbon vibrator, an actuator having connections with the vibrator, one of which is always in effective position, means to adjust the relative position of the vibrator and actuator, and thereby vary the amplitude of movement of the vibrator, and a universal bar permanently connected to the actuator; the actuator being adjustable relatively to the universal bar to permit the latter to operate without transmitting motion to the vibrator.

36. In a typewriting machine, the combination of a ribbon vibrator, an actuator having connections with the vibrator, one of which is always in effective position, means to adjust the relative position of the vibrator and actuator, and thereby vary the amplitude of movement of the vibrator, and a universal bar permanently connected to the actuator, said actuator being movable into position relatively to the said bar to permit the latter to vibrate without transmitting motion to the ribbon vibrator.

37. In a typewriting machine, the combination of a ribbon vibrator, an actuator therefor adjustably connected to the vibrator to vary the relative movement of vibrator and actuator, said connection preventing independent movement of the vibrator and actuator in any position of adjustment, and a universal bar carrying the actuator and vibratable independently of the actuator in one position of adjustment of the actuator.

38. In a typewriting machine, the combination of a ribbon vibrator, an actuator therefor adjustably connected to the vibrator to vary the relative movement of vibrator and actuator, said connection preventing independent movement of the vibrator and actuator in any position of adjustment, and a universal bar connected to the

actuator to transmit motion thereto, the actuator being adjustable into position to permit the operation of the universal bar independently of the actuator.

5 39. In a typewriting machine, the combination of a vibrator, an actuator therefor, and a universal bar permanently connected to the actuator, said actuator being adjustable to vary the throw of the vibrator and
10 also to permit the universal bar to operate independently of the actuator.

40. In a typewriting machine, the combination of a ribbon vibrator, an actuator

therefor, a universal bar frame provided with a slot in which the actuator is movable 15 transversely to the direction of motion of the said frame, said slot being formed with an enlargement or opening permitting relative movement of the actuator and said frame in the direction of motion of the 20 frame.

FRANK A. YOUNG.

Witnesses:

K. FRANKFORT,
PAUL ZIRON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."