

E. B. HESS.  
TYPE WRITING MACHINE.  
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1,044,783.

Patented Nov. 19, 1912.

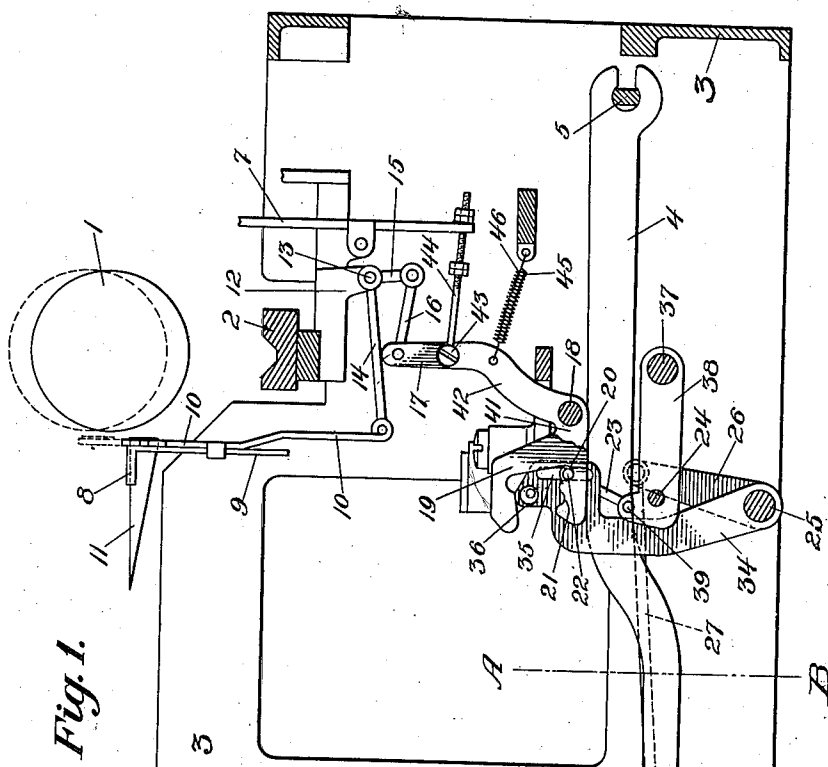


Fig. 1.

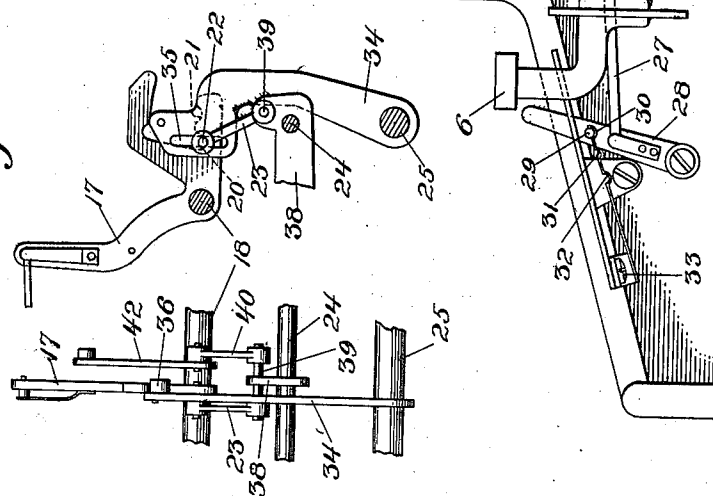


Fig. 2.

Fig. 3.

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# UNITED STATES PATENT OFFICE.

EDWARD B. HESS, OF NEW YORK, N. Y., ASSIGNOR TO ROYAL TYPEWRITER COMPANY,  
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## TYPE-WRITING MACHINE.

1,044,783.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Original application filed November 15, 1905, Serial No. 287,489. Divided and this application filed  
November 30, 1909. Serial No. 530,632.

### *To all whom it may concern:*

Be it known that I, EDWARD B. HESS, a citizen of the United States of America, residing in the borough of Manhattan, city, county, and State of New York, have invented a certain Improvement in Type-Writing Machines, of which the following is a specification.

This application is a division of my application filed November 15, 1905, Ser. No. 287,489.

This invention comprises primarily stop devices for limiting the different extents of movement of a ribbon vibrator of variable throw.

The invention operates, in the case of a plural zone ribbon, to prevent the type from making impressions that include the intended zone of the ribbon and also the edge of an adjoining zone thereby making single impressions of more than one color where the ribbon zones are of different color.

The accompanying drawing shows so much of a typewriting machine as is required to fully illustrate the invention.

The machine indicated in the drawing is of the general style disclosed, for instance, in my Letters Patent No. 874,338, granted December 17, 1907 and known as the "Royal Grand" having been manufactured by the Royal Typewriter Company.

Figure 1 is a vertical longitudinal section: Fig. 2, a detail front elevation of parts in rear of the line A. B. of Fig. 1: and Fig. 3, a side elevation, from the left hand, of the parts shown in Fig. 2.

1 indicates the platen and 2 the carriage shift-rail of a vertical-shift front strike typewriting machine.

3 indicates the main frame. Key levers 4, one only of which is shown, are pivoted upon a common pivot bar 5 extending across the back of the machine and their upturned ends in the keyboard are equipped with ordinary finger pieces 6.

7 is the usual rocking escapement plate (the escapement devices being omitted).

8 is a type bar guide fixed upon the main frame and having a downwardly extending part 9 on which is guided the vertically reciprocating ribbon guide or vibrator 10.

11 indicates a section of a ribbon.

The dotted lines show the shifted position of the platen and ribbon vibrator.

On a downward projection 12 shifting with the platen, is pivoted at 13 a bell crank lever, the forwardly extending arm 14 of which is pivotally connected at its forward end with the ribbon vibrator 10. The downwardly extending arm 15 of this bell crank has pivoted to its end a link 16 whose forward end is pivoted in the end of the upright arm 17 of a bell crank lever rocking about a fixed axis 18. The forwardly extending arm of this bell crank is in the form of a flat plate 19 having upper and lower jaws or bifurcations. In the upper edge of the lower jaw are notches or recesses 20, 21, adapted to be engaged by a pin or projection 22 carried in the end of a link 23, the lower end of which is connected with and actuated by the universal bar 24. When the projection 22 is engaged with the notch 20 nearest the axes 18, a maximum throw is imparted to the bell crank lever 17—19 and when engaged with notch 21, a less extent of movement is imparted to the bell crank lever. These movements occur on depression of the universal bar by the printing key levers of the machine. In this way the throw of the ribbon vibrator may be varied to print from different zones of a ribbon. The bell cranks 14—15, 17—19, are located centrally of the machine. In order that the operator may conveniently control the adjustment of projection 22, the following construction may be provided. A rock shaft 25 extending across the machine carries adjacent the left hand side plate of the frame an upright arm 26 to which is connected a link 27 whose forward end is pivotally connected to an upright lever 28, the lower end of which is pivoted on the side plate of the machine and whose upper end extends up at the left of the keyboard in convenient reach of the operator. This lever has a lateral projection 29 adapted to engage either one of three recesses 30, 31, 32 in a leaf spring whose rear end is secured to a fixed block 33.

On the rack shaft 25 at about the center of the machine is secured an upwardly extending arm or plate 34 having in its enlarged upper end a vertical slot 35 in which

lies one end of the pin or projection 22. In this way that projection may be adjusted to engage either of the notches 20, 21, or be entirely disengaged from the low jaw of the bell crank lever 17—19. If the projection 29 of the lever 28 be in recess 30 of the leaf spring, the parts will be in the condition indicated in Fig. 1 and a maximum movement will be imparted to the bell crank lever 17—19 and correspondingly to the ribbon vibrator to effect printing from the lower zone of a ribbon. If the projection 29 be in the recess 31, then projection 22 will be adjusted to the notch 21 and a less extent of movement will be imparted to the ribbon vibrator so that impressions from an upper zone of the ribbon may be effected. If projection 29, however, be in the recess 32 of the leaf spring, then pin 22 will be entirely disconnected from the bell crank lever 17—19 and, on actuation of the printing keys, no movement will be imparted to the ribbon vibrator and stencil plates for mimeograph work may be made without removal of the ribbon from the machine. Substantially the construction thus far described is disclosed and claimed in my prior application No. 287,439 of which this case is a division. In mechanisms of this class, experience has shown me that there is a tendency for the ribbon vibrator to overthrow so that an impression may include parts of two zones of a ribbon and for this reason I have found that the operation of typewriting machines in respect to proper printing from plural ribbons may be made accurate by providing stop means for definitely limiting the respective extents of movement of the ribbon vibrator. The particular embodiment of that feature disclosed in the drawing is as follows: On the upper end of the plate or arm 34 there is a stop projecting under the lower edge of the upper bifurcation of the bell crank arm 19. This stop 36 is shown as an eccentric which, when properly adjusted, is so related to the lower edge of the upper bifurcation of the bell crank arm 19 that, in the different positions of the arm 34 to effect the adjustment described, the stop 36 acts to definitely and properly limit the respective throws of the vibrator. The edge of the jaw of the bell crank is, of course, to be so laid out or shaped that it will effect in cooperation with a stop on the arm 34 the described result.

The connection of link 23 with the universal bar may be effected as follows:—In addition to the ordinary universal bar side-arms that extend from the universal bar rock shaft 37 to the universal bar 24 there is also a similar centrally disposed arm 38 with which the link 23 is pivotally connected through the medium of a short cross rod 39 carried in the end of the arm 38. To the cross rod 39 is also pivotally connected an-

other link 40 whose upper end is pivoted to the forwardly extending arm 41 of a bell crank lever also rocking about the axis 18 and whose upwardly extending arm 42 has pinned to it at 43 a rod 44 whose threaded end extends through an aperture in the escapement rocker or plate 7 and is provided on each side of the plate with nuts.

It has not been thought necessary to illustrate the type bar segment and type bars nor to show more than one key lever. All printing key levers would, of course, correspondingly actuate the universal bar. Of course, appropriate springs are to be provided wherever required. In the drawing, I have shown a coiled spring 45 applied to the arm 42 of the escapement bell crank lever and a coiled spring 46 applied to the arm 17 of the ribbon vibrator actuating lever.

The drawing shows the pin 22 in the recess 20. Therefore, as so shown, the ribbon mechanism is adjusted to effect printing from the lower or bottom zone of a ribbon. The normal arrangement is in practice that in which the pin 20 is in the slot 21 so that printing will be effected from the upper zone of the ribbon for the reason that in two-color printing the most used part of the ribbon is the upper zone and to bring the lower zone into the printing field requires a greater extent of movement of the ribbon vibrator.

I claim:

1. In a visible writing machine, ribbon vibrator mechanism comprising the combination of a bell crank turning about a fixed axis and having an upwardly extending arm operatively connected by appropriate devices with the ribbon vibrator, a laterally extending arm having recesses or notches therein, a link connected with the universal bar at its lower end and having at its upper end a projection adapted to engage either of such recesses and means under the control of the operator for, at will, bringing such projection into either of such recesses to thereby vary the leverage and consequent throw the bell crank lever, and stop devices for limiting the throw of the bell crank lever.

2. In a visible writing machine, ribbon vibrator mechanism comprising the combination of a bell crank turning about a fixed axis and having a laterally extending arm formed with seats or recesses, a link having its lower end connected to the universal bar and formed at its upper end with a projection adapted to engage either of such recesses and an upwardly extending adjusting plate having a slot engaged by such projection whereby on movement of the arm, the projection is brought into engagement with the desired recess in the bell crank arm.

3. In a visible writing machine, ribbon vibrator mechanism comprising the combination of a bell crank turning about a fixed axis and having a laterally extending arm formed with seats or recesses, a link having its lower end connected to the universal bar and formed at its upper end with a projection adapted to engage either of such recesses, an upwardly extending adjusting plate having a slot engaged by such projection whereby on movement of the arm the projection is brought into engagement with the desired recess in the bell crank arm, a projection on the bell crank arm and a stop on the adjusting plate co-acting to limit the throw of the bell crank lever on depression on the universal bar.

4. Ribbon vibrating mechanism for a visible typewriting machine, comprising a shifting platen, a ribbon vibrator, a ribbon vibrator operating lever, means whereby the operating lever and with it the vibrator is automatically adjusted, as the platen is shifted, to the shifted position of the platen, and adjustable variable leverage means under control of the operator acting to impart variable extents of movement of the vibrator to bring one or another zone of a plural zone ribbon to the printing point, adjustable stop means acting to positively limit the respective extents of movement of the vibrator in either position of the platen and means for simultaneously adjusting the variable leverage means and the stop means independently of the printing operation of the machine.

5. Ribbon vibrating mechanism for a visible typewriting machine, comprising a shifting platen, a ribbon vibrator, means whereby the vibrator is automatically adjusted to the platen when the latter is shifted, a lever acting to throw the vibrator to the printing point, lever operating means, means under the control of the operator whereby said operating means may be applied to said lever at different distances from its axis to effect different extents of movement of the vibrator, finger pieces, means whereby the lever operating means are actuated on depression of the finger pieces, adjustable stop means acting to positively limit the respective extents of movement of the vibrator in either position of the platen and means for simultaneously adjusting said lever operating means and said stop means independently of the printing operation of the machine.

6. Ribbon vibrating mechanism for a visible typewriting machine, comprising a shifting platen, a ribbon vibrator means whereby the vibrator is automatically adjusted to the platen when the latter is shifted, a lever acting to throw the vibrator to the printing point, lever operating means, means under the control of the operator whereby said op-

erating means may be applied to said lever at different distances from its axis to effect different extents of movement of the vibrator, finger pieces, means whereby the lever operating means are actuated on depression of the finger pieces, coöperating stop devices carried by said lever and said lever operating means and acting to positively limit the respective extents of movements of the vibrator in either position of the platen and means for adjusting said lever operating means independently of the printing operation of the machine.

7. A visible typewriting machine comprising the combination of a shifting platen, a ribbon vibrator mounted to move on a fixed part of the machine, a lever for operating it mounted to shift with the platen, means for operating said lever, adjustable means for controlling the distance through which the vibrator and its operating lever are moved, adjustable stop means for positively limiting the respective distances through which the vibrator is moved, and means under control of the operator for co-incidentally adjusting said stop means and said controlling means independently of the printing operation of the machine.

8. A visible typewriting machine comprising the combination of a shifting platen, a ribbon vibrator, adjustable vibrator operating means for moving it through different distances, adjustable stop means for positively limiting the respective distances through which the vibrator is moved, and means under control of the operator for co-incidentally adjusting said stop means and said vibrator operating means independently of the printing operation of the machine.

9. A visible typewriting machine comprising the combination of a shifting platen, a ribbon vibrator, and co-incidentally adjustable vibrator operating means for moving the vibrator through different distances and vibrator stop means for positively limiting the respective movements of the vibrator, and means whereby the operator by one operation may adjust both the vibrator operating means and the vibrator stop means independently of the printing operation of the machine.

10. A visible typewriting machine comprising the combination of a shifting platen, a ribbon vibrator mounted to move on a fixed part of the frame, a vibrator operating lever mounted to shift with the platen, means mounted on the frame of the machine for actuating the vibrator operating lever, adjustable means for causing the last named means to impart different extents of movement to the vibrator operating lever, stop means for limiting the respective extents of movement of the vibrator, and means whereby said adjustable means and said

stop means may be co-incidentally adjusted independently of the printing operation of the machine.

11. In ribbon vibrator mechanism the combination of a ribbon vibrator, adjustable means adapted to impart to the vibrator a plurality of extents of movement, corresponding adjustable stop means for positively limiting the extents of movement of the vibrator and means for simultaneously correspondingly adjusting said two means independently of the printing operation of the machine.

12. A visible typewriting machine comprising the combination of a ribbon vibrator, a lever operatively connected at one point with the vibrator, lever actuating means operatively connected with said lever at another point, means for varying the normal connection between the actuating means and the lever to thereby impart to the latter different extents of movement and adjustable stop means coöperating with said lever to arrest it at different points.

13. A visible typewriting machine comprising the combination of a ribbon vibrator, a lever operatively connected at one point with the vibrator, lever actuating means operatively connected with said lever at another point, means for varying the normal connection between the actuating means and the lever to thereby impart to the latter different extents of movement, adjustable stop means coöperating with said lever to arrest it at different points and means located at the side of the key board for adjusting said lever actuating means and said stop means.

14. A visible typewriting machine comprising the combination of a shifting platen, a ribbon vibrator, means whereby the vibrator is automatically adjusted to the platen when the latter is shifted, a lever operatively connected at one point with the vibrator, lever actuating means operatively connected with said lever at another point, means for varying the normal connection between the actuating means and the lever to thereby impart to the latter different extents of movement and adjustable stop means coöperating with said lever to arrest it at different points.

15. A visible typewriting machine comprising the combination of a shifting platen, a ribbon vibrator, adjustable vibrator operating means for moving it through different distances, adjustable stop means for positively limiting the respective distances through which the vibrator is moved, and means under control of the operator for adjusting said stop means and said vibrator operating means independently of the printing operation of the machine.

16. A visible typewriting machine comprising a ribbon vibrator, a vibrator oper-

ating lever operatively connected at one point with the vibrator, lever actuating means operatively connected with said lever at another point, means for varying the normal connection between said actuating means and said lever to thereby impart to the latter different extents of movement, stop means normally acting upon said lever to limit the movement of the vibrator to effect printing from the upper zone of a ribbon and means for removing said stop from its normal relation to the lever when a greater movement is to be imparted to the vibrator to effect printing from a lower zone of the ribbon.

17. A visible typewriting machine comprising a ribbon vibrator, a vibrator operating lever operatively connected at one point with the vibrator, lever actuating means operatively connected with said lever at another point, means for varying the normal connection between said actuating means and said lever to thereby impart to the latter different extents of movement, stop means normally acting upon said lever to limit the movement of the vibrator to effect printing from the upper zone of a ribbon and means located in the key board and under the control of the operator for removing said stop from its normal relation to the lever when a greater movement is to be imparted to the vibrator to effect printing from a lower zone of the ribbon.

18. A visible typewriting machine comprising a ribbon vibrator, a vibrator operating lever operatively connected at one point with the vibrator, lever actuating means operatively connected with said lever at another point, means for varying the normal connection between said actuating means and said lever to thereby impart to the latter different extents of movement, stop means normally acting to limit the normal movement of the vibrator to effect printing from the upper zone of a ribbon and means for removing said stop from its normal position when a greater extent of movement is to be imparted to the vibrator to effect printing from a lower zone of the ribbon.

19. Ribbon mechanism comprising a ribbon vibrator, means whereby it may be actuated through different distances to effect printing from an upper or lower zone of a ribbon, stop means which when in normal position positively arrest the vibrator when printing is being done from the upper zone of the ribbon and means whereby said stop means may be moved from normal position to permit a greater movement of the vibrator to effect printing from the lower zone of the ribbon.

20. Ribbon mechanism comprising a ribbon vibrator, means whereby it may be actuated through different distances to effect

printing from an upper or lower zone of a ribbon, stop means which when in normal position positively arrest the vibrator when printing is being done from the upper zone of the ribbon and means in front of the type bar heads and under the control of the operator whereby said stop means may be moved from normal position to permit a greater movement of the vibrator to effect printing from the lower zone of the ribbon.

21. A front strike typewriting machine comprising a ribbon vibrator, adjustable means for actuating it through different ranges of movement to print at will from an upper or lower zone of a ribbon, stop means normally acting to positively limit the movement of the vibrator to effect printing from the upper zone only and means whereby independently of the printing operation of the machine the operator may adjust the vibrator actuating means to impart to it a greater extent of movement to print from the lower zone and remove from its normal position the stop means to thereby permit such greater movement of the vibrator.

22. A front strike typewriting machine comprising a ribbon vibrator, adjustable means for actuating it through different ranges of movement to print at will from an upper or lower zone of a ribbon, stop means normally acting to positively limit the movement of the vibrator to effect printing from the upper zone only and means located in front of the type bar heads whereby independently of the printing operation of the machine the operator may adjust the vibrator actuating means to impart to it a greater extent of movement to print from the lower zone and remove from its normal position the stop means to thereby permit such greater movement of the vibrator.

23. A front strike typewriting machine comprising a shifting platen, a ribbon vibrator, a bell crank lever mounted to shift with the platen and having a forwardly extending arm operatively connected to the vibrator, an operating lever mounted upon a fixed axis, a link connection from the upper end of said lever to the downwardly extending arm of the bell crank lever said link being inclined downwardly from its point of connection with the operating lever to its point of connection with the downwardly extending arm of the shifting bell crank lever, actuating means operatively connected with said operating lever, means whereby the extent of movement imparted to the vibrator may be varied to print from either an upper or lower zone of a ribbon, an adjustable stop means acting to positively arrest the

vibrator at the conclusion of either of its movements to bring a zone of the ribbon into the printing field.

24. A front strike typewriting machine comprising a shifting platen, a ribbon vibrator, a bell crank lever mounted to shift with the platen and having a forwardly extending arm operatively connected to the vibrator, an operating lever mounted upon a fixed axis, a link connection from the upper end of said lever to the downwardly extending arm of the bell crank lever, said link being inclined downwardly from its point of connection with the operating lever to its point of connection with the downwardly extending arm of the shifting bell crank lever, actuating means operatively connected with said operating lever, means whereby the extent of movement imparted to the vibrator may be varied to print from either an upper or lower zone of a ribbon, a stop normally acting to positively arrest the vibrator in position for printing from an upper zone of a ribbon and means for moving said stop from such normal position to permit a greater movement of the vibrator to print from a lower zone of the ribbon.

25. A front strike typewriting machine comprising a shifting platen, a ribbon vibrator, a bell crank lever mounted to shift with the platen and having a forwardly extending arm operatively connected to the vibrator, an operating lever mounted upon a fixed axis, a link connection from the upper end of said lever to the downwardly extending arm of the bell crank lever, said link being inclined downwardly from its point of connection with the operating lever to its point of connection with the downwardly extending arm of the shifting bell crank lever, actuating means operatively connected with said operating lever, means whereby the extent of movement imparted to the vibrator may be varied to print from either an upper or lower zone of a ribbon, a stop normally acting to positively arrest the vibrator in position for printing from an upper zone of a ribbon and means for at one operation adjusting the extent of movement that may be imparted to the vibrator by said actuating means and for removing said stop means from normal position to thereby permit such greater extent of movement of the vibrator.

In testimony whereof, I have hereunto subscribed my name.

EDWARD B. HESS.

Witnesses:

Z. C. MYERS,

A. SCHWARTZ.