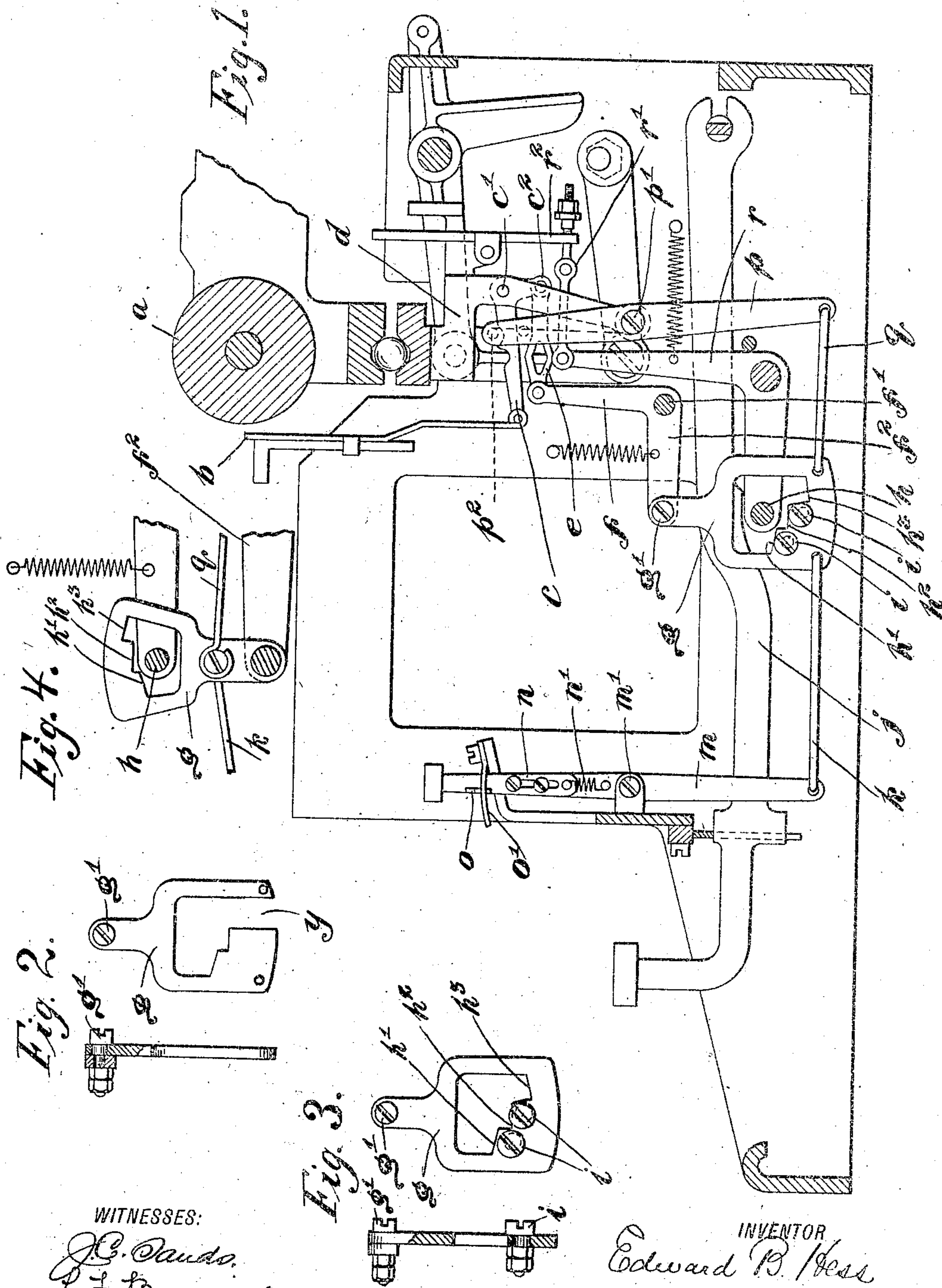


No. 874,338.

PATENTED DEC. 17, 1907.

E. B. HESS.  
TYPE WRITING MACHINE.  
APPLICATION FILED AUG. 30, 1907.



WITNESSES:  
*J. C. Pando.*  
*L. F. Browning.*

INVENTOR  
*Edward B. Hess*  
BY  
*Edward C. Pando*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

EDWARD B. HESS, OF NEW YORK, N. Y., ASSIGNOR TO ROYAL TYPEWRITER COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## TYPE-WRITING MACHINE.

No. 874,338.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed August 30, 1907. Serial No. 390,703.

*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 Brooklyn, city and State of New York, have invented certain Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to improvements in ribbon mechanism, of a visible writing machine and comprises an improved means whereby a variable throw may be imparted to the ribbon vibrator to carry different zones of the ribbon to the printing point.

The invention is particularly designed for use with a ribbon having plural zones of unlike character or color from either of which, at the will of the operator, printing may be effected.

The primary feature of this invention consists in the employment of a device which it is thought may be accurately described as a link interposed between the ribbon vibrator and the universal bar and having surfaces or stops of different elevation with either of which, at will, one or the other of said parts may engage to effect movement of the ribbon vibrator through different distances. The universal bar may have a uniform depth of depression and consequently when the effective length of the link is shortest it is moved through a greater distance by the universal bar than when it is longer and there is also some lost motion during some part of the downward traverse of the universal bar when it does not carry the link with it. More specifically stated, this device which I have referred to as a link may be in the form of a plate rocking about an axis and so disposed with reference to the universal bar that by rocking the plate about its axis either one of several surfaces may be brought into line to be operated upon by the universal bar when depressed. Such surfaces are at different distances from its center of motion about which the link rocks. The link is so operatively interposed between the universal bar and the ribbon vibrator actuating devices that when the surface nearest the axis of the link is brought into operation on depression of the universal bar to throw the ribbon vibrator to the printing point, the effective length of the link is short and a maximum range of movement is

imparted to the ribbon vibrator. When a surface at greater distance from the axis is brought into operation the link is in effect longer and there is some lost motion on depression of the universal bar before said surface is engaged and therefore a shorter or less range of movement is imparted to the ribbon vibrator. This link may be pivoted upon the universal bar in which event its operating surfaces will engage the actuating devices of the ribbon vibrator; or it may be pivoted upon the actuating devices of the ribbon vibrator in which event its operating surfaces will be engaged by the universal bar.

In the accompanying drawings: Figure 1 is a vertical longitudinal section of so much of a machine as is deemed desirable to illustrate the invention: Fig. 2, a view showing in detail a ribbon vibrating operating member: Fig. 3, a similar view showing a modification: Fig. 4, a detail vertical longitudinal section showing a modification.

*a* is the platen and *b* the ribbon vibrator pivoted at its lower end to the horizontally disposed arm *c* of a bell crank lever pivoted at *c'* in a downward extension *d* from the shift rail that supports the platen carriage. The downwardly extending arm *c'* of this bell crank lever has connected to it a forwardly extending link *e* connected at its front end to the upright arm *f* of a bell crank lever that may be pivoted in the center of the machine on an axis *f'*. The forwardly extending arm *f'* of this bell crank lever may have applied to it a reactionary spring as shown and to its end is pivoted a downwardly extending member *g*, which I have called a link, having an enlarged opening in which the universal bar *h* is located. The lower wall or side of this opening is stepped as at *h'*, *h''*, *h'''*. If the plate or link *g* be adjusted so that the more distant surface *h'''* lies in the paths of the universal bar there will be no actuation whatever of the ribbon vibrator and stencil work may then be done. If, on the other hand, the plate be so adjusted that the surface *h''* lies in the path of the universal bar there will be a short range of movement imparted to the ribbon vibrator because the universal bar after having been carried through part of its downward movement will engage that surface and the part *g* will then act as a link to draw down the for-



wardly extending bell crank arm  $f$ . If adjustment of the part  $g$  be such that its surface  $h'$  is in the path of the universal bar, then the link or part  $g$  will be effective during substantially the entire range of depression of the universal bar and a greater range of movement will be imparted to the ribbon vibrator. When the surface  $h^2$  is in operation, printing may occur from the upper zone of the ribbon and when the surface  $h'$  is in operation, printing may occur from the lower zone of the ribbon.

To afford accurate adjustment during assembling, the plate or link  $g$  may be provided with eccentric bolts  $i, i$  that may be so adjusted that their peripheries will constitute the working surfaces as  $h', h^2$  of the link. This feature is shown in detail in Fig. 3. In Fig. 2, the pivot bolt  $g'$  by means of which the link is suspended from the forwardly extending arm  $f^2$  of the bell crank may be eccentric thereby affording means for simultaneous adjustment of both surfaces  $h', h^2$ . There are key levers,—one  $j$  being shown,—that may be of ordinary style pivoted in rear of the machine and acting directly on the universal bar as is common. The link  $g$  may be adjusted by a horizontally disposed link  $k$  having its rear end connected to  $g$  and its forward end connected to the lower end of a vertically disposed lever  $m$  pivoted at  $m'$ . Above the pivot this lever is provided with a sliding piece constituting its upper part  $m$  to which is applied a reaction spring  $n'$ . On the side of the lever is a downwardly extending hook or pin  $o$  that may engage apertures in a plate  $o'$  so as to afford the three adjustments described. This lever  $n$  and consequently the plate  $o'$  may be located centrally of the key board.

To prevent overthrow of the ribbon there is provided a vertically disposed lever  $p$  pivoted at  $p'$  in the downward extension  $d$  from the shift rail of the carriage and having in its upper end a lateral pin  $p^2$  overlying the upper edge of the horizontally disposed bell crank arm  $c$  to which the ribbon vibrator is pivoted. The upper edge of this arm is appropriately recessed so that in different adjustments of the apparatus, the pin  $p^2$  will act as a positive stop to limit the throw of the ribbon vibrator. The lever arm  $p$  may be adjusted correspondingly with the link or plate  $g$  by means of a link  $q$  connected at one end to said plate and at the other to the lower end of the lever  $p$ . Such an arrangement of lever and stop devices to prevent overthrow of the ribbon vibrator is disclosed and claimed by me in my application, No. 372,465, filed May 8, 1907 and is therefore not broadly claimed herein. The arrangement of link  $k$ , lever  $m$ ,  $n$ ,  $o$ , and slotted plate  $o'$  is the same as that described in my application filed simultaneously herewith in

which the construction is employed for the adjustment of a ribbon vibrator device of different construction from that herein shown.

In Fig. 4, the link or plate  $g$  rocks about the universal bar  $h$  and therefore it extends upwardly and into the opening therein extends a lateral pin projecting from arm  $f^2$  of the bell crank, above which pin or lateral projection the upper wall of the opening in the link is formed with the surfaces  $h', h^2, h^3$  arranged at different distances from the axis  $h$  of the link. The horizontally disposed links  $k$  and  $q$  are in this case applied to the plate or link  $g$  intermediate its ends instead of at the lower front and rear corners thereof as in Fig. 1. Otherwise, the construction and operation are in all respects the same as above described in connection with Fig. 1.  $r$  is the usual form of upwardly extending arm, vibrated longitudinally of the machine on movement of the universal bar and connected by a jointed link  $r'$  with the operating lever  $r^2$  of the escapement. The construction of the link  $r'$  and the manner of its application to the escapement lever  $r^2$  are shown in earlier applications filed by me and form no part of the invention herein claimed. The part  $g$  which has been described as a link of variable length may perhaps be properly described as a link which is engaged at different points to thereby effect a greater or less movement of it to vary the range of movement of the ribbon vibrator. It is, however, in either case properly designated a link because it has a drawing action and is subjected to tensile strain. As shown in Fig. 2 the member or link may be open or cut away as, for instance, at  $y$  to facilitate assembling.

The general arrangement of bell crank levers and connecting link centrally of the machine for operating the ribbon vibrator is shown in said application 372,465 and in my earlier application Serial No. 287,489 filed November 15, 1905, and is, therefore, not claimed herein. Both said applications disclose automatically acting ribbon vibrator stop devices cooperating with the vibrator in its different printing positions combined with adjustable ribbon vibrator actuating means by which the vibrator may be moved to different printing positions, and, therefore, such subject matter is not claimed herein.

I claim:

1. Ribbon vibrating mechanism for a typewriting machine comprising the combination of a ribbon vibrator, a universal bar, means for operating the vibrator and an adjustable link having surfaces of different elevation operatively interposed between the ribbon vibrator operating devices and the universal bar and whose said surfaces are adapted to engage one of said parts whereby different



ranges of movement may be imparted to the ribbon vibrator according to the adjustment of said link.

2. Ribbon vibrating mechanism for a type-writing machine comprising the combination of a ribbon vibrator, means for operating it comprising a bell crank lever, a universal bar and an adjustable link pivoted upon one of the two last named parts and having operating surfaces at different distances from its axis adapted to be engaged by the other of said parts whereby according to the adjustment of the link different ranges of movement may be imparted to the ribbon vibrator.

3. Ribbon vibrating mechanism for a type-writing machine comprising the combination of a ribbon vibrator, a universal bar, means for operating the vibrator, an adjustable link having surfaces of different elevation operatively interposed between the ribbon vibrator operating devices and the universal bar and whose said surfaces are adapted to engage one of said parts, whereby different ranges of movement may be imparted to the ribbon vibrator according to the adjustment of said link and means under the control of the operator for adjusting said link.

4. Ribbon vibrating mechanism for a type-writing machine comprising the combination of a ribbon vibrator, means for operating it comprising a bell crank lever, a universal bar and an adjustable link pivoted upon one of the two last named parts and having operating surfaces at different distances from its axis adapted to be engaged by the other of said parts whereby according to the adjustment of the link different ranges of movement may be imparted to the ribbon vibrator and means under the control of the operator for adjusting said link.

5. Ribbon vibrating mechanism for a type-writing machine comprising the combination of a ribbon vibrator, a universal bar, means for operating the vibrator, an adjustable link having surfaces of different elevation operatively interposed between the ribbon vibrator operating devices and the universal bar and whose said surfaces are adapted to engage one of said parts, said link being connected to one of said parts and adapted to be operated upon by the other whereby different ranges of movement may be imparted to the ribbon vibrator according to the adjustment of said link and means adjustable coincidentally with the adjustment of said link for positively limiting the upward throw of the ribbon vibrator.

6. Ribbon vibrating mechanism for a type-writing machine comprising the combination of a ribbon vibrator, means for operating it comprising a bell crank lever, a universal bar and an adjustable link pivoted upon one of the two last named parts and having operating surfaces at different dis-

tances from its axis adapted to be engaged by the other of said parts whereby according to the adjustment of the link different ranges of movement may be imparted to the ribbon vibrator and means adjustable coincidentally with the adjustment of said link for positively limiting the upward throw of the ribbon vibrator.

7. A ribbon vibrator mechanism for type-writing machines comprising the combination of a ribbon vibrator, means for operating it comprising a bell crank lever, a universal bar and an adjustable link mounted upon one of said two last named parts and having surfaces at different distances from the point at which it is mounted and either one of which, according to the adjustment of the link, is adapted to be engaged during depression of the universal bar by the other one of said two last named parts.

8. A ribbon vibrator mechanism for type-writing machines comprising the combination of a ribbon vibrator, means for operating it comprising a bell crank lever, a universal bar, an adjustable link mounted upon one of said two last named parts and having surfaces at different distances from the point at which it is mounted and either one of which, according to the adjustment of the link, is adapted to be engaged during depression of the universal bar by the other one of said parts and means for adjusting said surfaces with respect to the point at which the link is mounted.

9. A ribbon vibrator mechanism for type-writing machines comprising the combination of a ribbon vibrator, means for operating it comprising a bell crank lever, a universal bar, an adjustable link mounted upon one of said two last named parts and having surfaces at different distances from the point at which it is mounted and either one of which, according to the adjustment of the link, is adapted to be engaged during depression of the universal bar by the other one of said parts and means for individually adjusting said surfaces with respect to the point at which the link is mounted.

10. Ribbon vibrating mechanism for a typewriting machine comprising the combination of a ribbon vibrator, a universal bar, means for operating the vibrator, an adjustable link having surfaces of different elevation operatively interposed between the ribbon vibrator operating devices and the universal bar and whose said surfaces are adapted to engage one of said parts, whereby different ranges of movement may be imparted to the ribbon vibrator according to the adjustment of said link and escapement devices operated during movement of the universal bar.

11. Ribbon vibrating mechanism for a typewriting machine comprising the combi-



nation of a ribbon vibrator, means for operating it comprising a bell crank lever, a universal bar having a uniform extent of depression, an adjustable link pivoted upon  
5 one of the two last named parts and having operating surfaces at different distances from its axis adapted to be engaged by the other of said parts whereby according to the adjustment of the link different ranges of  
10 movement may be imparted to the ribbon vibrator and escapement devices operated by the universal bar during its movement.

12. Ribbon vibrating mechanism for a typewriting machine comprising the combination of a ribbon vibrator, means for operating it comprising a bell crank lever, a uni-

versal bar and an adjustable link pivoted upon one of the two last named parts and having operating surfaces at different distances from its axis adapted to be engaged  
20 by the other of said parts whereby according to the adjustment of the link different ranges of movement may be imparted to the ribbon vibrator, means under the control of the operator for adjusting said link and escape-  
25 ment devices operated by the universal bar.

In testimony whereof, I have hereunto subscribed my name.

EDWARD B. HESS.

Witnesses:

JOHN M. LEE,

L. F. BROWNING.