E. B. HESS.

WRITING MACHINE.

APPLICATION FILED JULY 24, 1907.

948,973.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

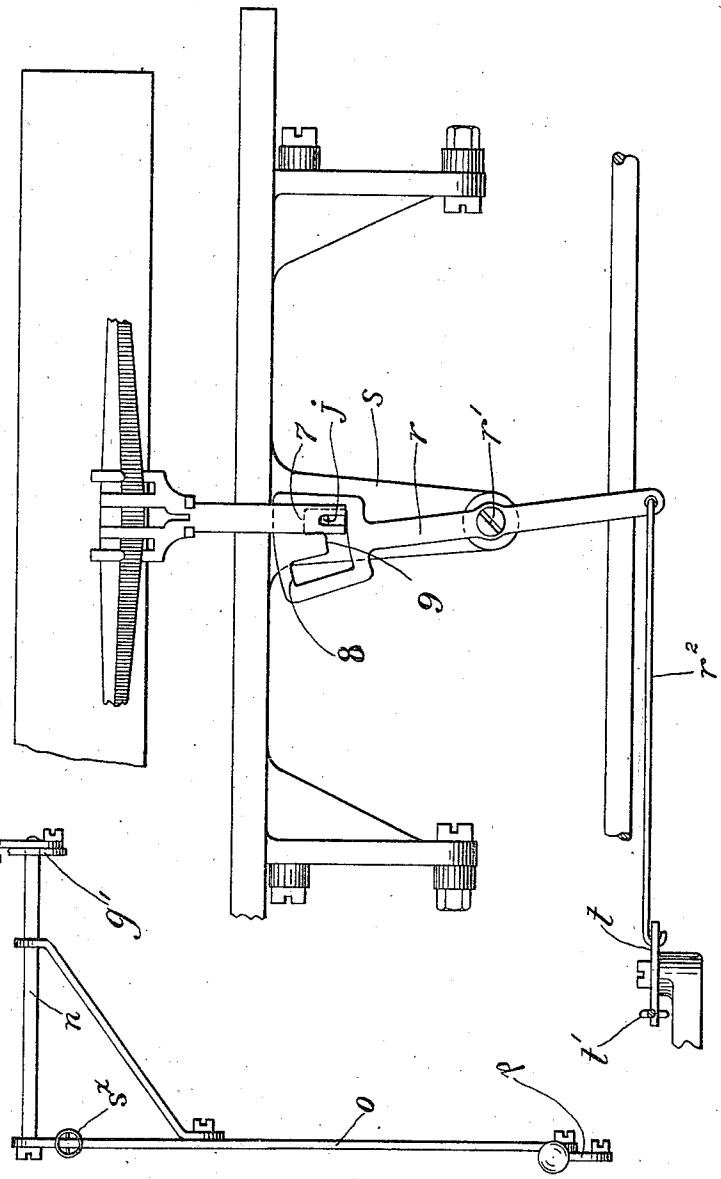

Fig. 5.

WITNESSES:

L. F. Browning

G. S. Tenley

INVENTOR

Edward B. Hess

BY

Edward C. Davidson

ATTORNEY

E. B. HESS.

WRITING MACHINE.

APPLICATION FILED JULY 24, 1907.

948,973. Patented Feb. 8, 1910.

2 SHEETS—SHEET 2.

Fig. 2.

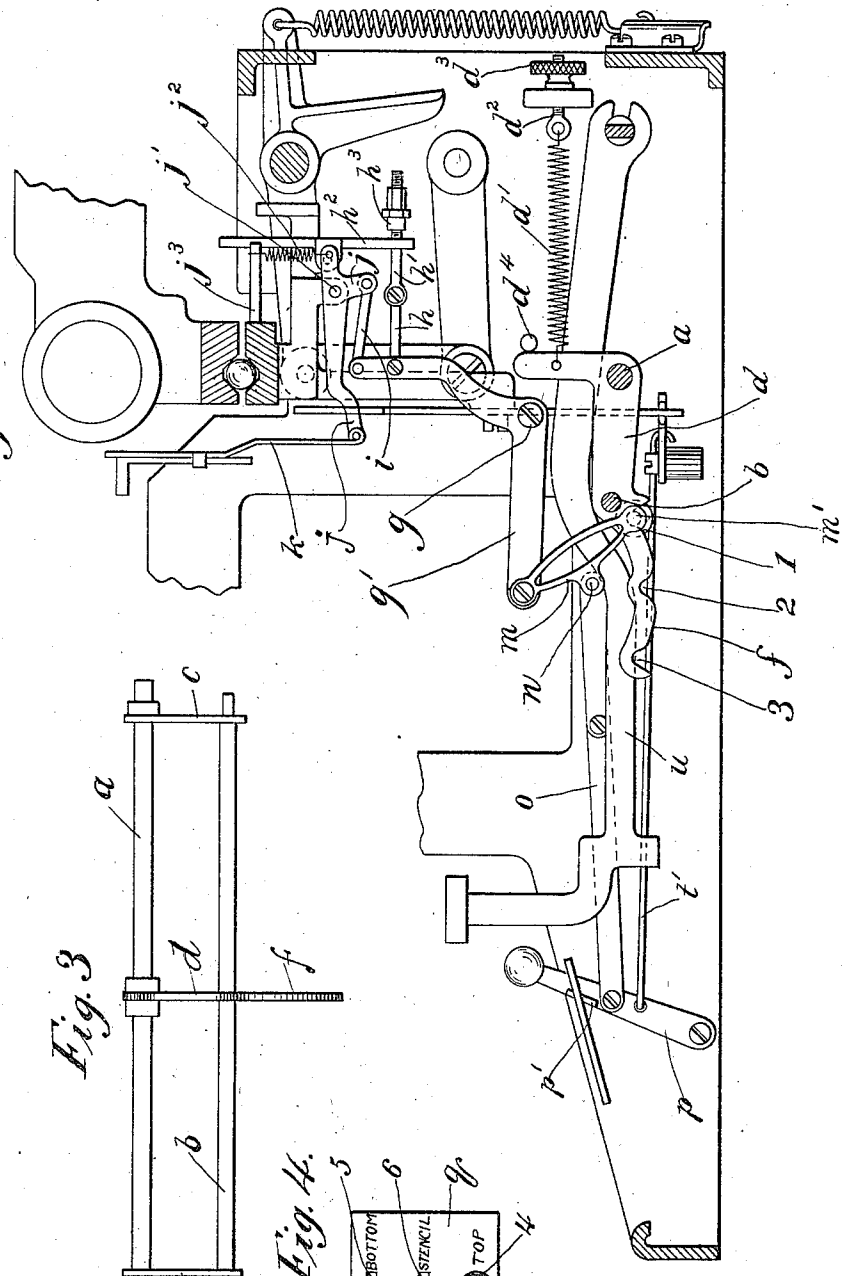

Fig. 3

Fig. 4.

WITNESSES:

L. L. Browning

G. S. Tetley

INVENTOR

Edward B. Hess

BY Edward C. Davidson

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.

WRITING-MACHINE.

948,973. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed July 24, 1907. Serial No. 385,276.

To all whom it may concern:

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

This invention relates to the actuation of a ribbon vibrator or guide for a visible writing machine and is particularly adaptable for use in connection with ribbons having two or more zones of different character or color. The movement of the vibrator is effected from the universal bar in a novel manner hereinafter described in detail and, in connection with the vibrator, there is employed a novel arrangement of stop devices that prevents overthrow of the vibrator and also holds the vibrator depressed so that the ribbon is held below the printing point when stencil work is to be done.

In the accompanying drawings: Figure 1 is a front elevation: Fig. 2, a vertical longitudinal section: Fig. 3, a detail plan view of the universal bar: Fig. 4, a detail plan of an indicator plate in the key board cooperating with an adjusting device under the control of the operator for determining the throw of the ribbon vibrator: and Fig. 5, a detail plan view of devices for determining the extent of movement of the ribbon vibrator.

So much only of a typewriting machine has been shown as is deemed necessary to clearly illustrate this invention.

a is the rock shaft of the universal bar *b* carried in the ends of the arms *c* projecting from the rock shaft.

In the center line of the machine there is an arm or plate *d* that connects the two bars *a*, *b* and has at the rear an upward extension to which is attached the universal bar spring *d'* connected with a threaded adjusting bolt d^2 to which is applied an adjusting nut d^3. A stop d^4 limits the movement rearwardly. At the front there extends forward from the bar *d* an arm *f* having in its under face three notches 1, 2, 3. Above the part *d* and pivoted upon the ribbon bracket (not shown) is a bell crank *g* whose upwardly extending arm has connected to it two links. One link *h* is jointed to a threaded bolt or link *h'* that passes through an aperture in the escapement lever h^2 and has applied to its end an adjusting nut h^3. The other link *i* is above the link *h* and is connected at its rear end with the downwardly extending arm *j* of a bell crank lever pivoted at *j'* in a projection from the front shift rail of the carriage. The other arm of the bell crank lever extends forward and is jointed to the ribbon vibrator *k*.

In rear of the pivot *j'*, the bell crank lever has an extension to which is attached one end of a coiled spring j^2, the upper end of which is attached to a post j^3 extending rearwardly from the shift rail of the carriage. When, therefore, the bell crank *j* is rocked about its axis, the ribbon vibrator is elevated and the escapement lever operated. The forwardly extending or horizontal arm *g'* of bell crank *g* has pivoted to it a link *m* carrying at its lower end a pin *m'* which describes an arc that conforms substantially to the curved lower edge or face of the projection or arm *f* and which is adapted to engage either one of the notches 1, 2, 3. The lever may be adjusted to engage the desired notch by means of a transverse rod *n* attached to a longitudinally disposed rod *o* adjacent the side of the machine and extending forwardly to a lever *p* pivoted at its lower end on the side plate of the machine and having a lug *p'* on its side adapted to engage notches 4, 5 and 6 in the wall of a slot in an indicator plate *q*. The different adjustments may be indicated by the words "Bottom", "Stencil", "Top" placed upon this plate. With the adjustment indicated in Fig. 2 such extent of movement will be imparted to the ribbon vibrator as to effect printing from the top zone of a two-zone ribbon. If pin *m'* is adjusted in the recess 3, then a greater range of movement will be imparted to the vibrator to print from the bottom zone of the ribbon: whereas, if the pin *m'* be adjusted in the notch 2 there will not be sufficient movement of the ribbon vibrator to bring any part of the ribbon opposite the printing point and yet there will be sufficient movement of lever *g* to operate the escapement. Such adjustment is for stencil work.

To positively limit the throw of the ribbon vibrator or to hold it depressed so that there will be no danger of projection of the ribbon to the printing point when stencil work is being done, there is employed a stop device consisting of a plate through an

aperture in which the forwardly extending arm of the bell crank lever j passes and which has surfaces of different elevation marked 7, 8 and 9 which operate to positively limit the movement of the ribbon vibrator. It is preferred, of course, that adjustment of this stop device should be automatic and co-incident with the adjustment of the lever m. This may be effected in the following way. The plate, having surfaces 7, 8, 9, is carried at the upper end of, or is integral with, a vertically disposed lever r pivoted at r' intermediate its ends in a downward projection s from the shift rail of the carriage. To the lower end of this lever is applied a link r^2 extending laterally to one arm of a bell crank lever t, the other arm of which is connected by a link t' with the adjusting lever p.

The invention as shown is applied to a key lever machine one key lever u being shown. It operates upon the universal bar b in the usual way.

s^x represents a coiled spring of a few turns attached to rod o and bearing at its upper end upon some plane-faced overhanging part of the frame, and acting to steady the parts o, n and maintain the rod n in horizontal position.

In my application filed November 30th, 1909 Serial Number 530,632 which is a division of my application filed November 15th, 1905 Serial Number 287,489 there is disclosed and claimed ribbon vibrator mechanism wherein the vibrator has imparted to it a plurality of extents of movement, and adjustable coöperating stop devices for limiting the respective movements of the vibrator, and hence such subject matter is not claimed herein, the claims herein being directed to special constructions not disclosed in said application, and also not disclosed in applications of mine relating to the same general subject matter viz: application filed May 8th, 1907 Serial Number 372,465, and application filed April 16th, 1909 Serial Number 490,243.

I claim:

1. In a visible writing machine, a ribbon vibrator, a universal bar, an arm extending transversely from the universal bar and positively movable therewith, a bell crank lever having its horizontally disposed arm connected with the ribbon vibrator, a second bell crank lever, a link connection between it and the other bell crank lever, a swing link connected with the second named bell crank lever and adapted to engage said arm at different points, and means independent of the operation of the machine for adjusting said swinging link and thereby determining the extent of movement of the ribbon vibrator.

2. In a visible writing machine, a universal bar, a longitudinally arranged vertically movable part carried by the universal bar and actuated therewith on depression of the finger pieces, a ribbon vibrator, an operative connection between said part and the vibrator comprising a link swinging in a plane parallel with said part and adapted to engage said part at points at different distances from the universal bar, and means independent of the operation of the machine for adjusting the swinging link whereby the extent of movement of the ribbon vibrator, on depression of the keys, is determined.

3. In a visible writing machine, the combination with the carriage shift rail, of a bell crank lever pivoted thereon and having one arm connected to the vibrator, a second bell crank pivoted upon a fixed part of the machine, an operating connection between it and the first named bell crank, a longitudinally arranged part projecting from and movable with a universal bar, a swinging link connection between the second named bell crank lever and said longitudinally arranged part and means for adjusting, to different points of engagement with said part, such swinging link connection independent of the operation of the machine to thereby determine the extent of movement of the ribbon vibrator.

4. In a visible writing machine, a ribbon vibrator, a universal bar, a longitudinally arranged part carried by and moved positively with the universal bar, an operative connection between the ribbon vibrator and said part, means under the control of the operator and independent of the operation of the machine for connecting said operative connection with said part, at different distances from the universal bar, whereby, at will, different ranges of movement are imparted to the ribbon vibrator, and means automatically adjustable with the means for determining the throw of the ribbon vibrator and acting to positively limit its movement.

5. In a visible writing machine, a ribbon vibrator, a universal bar, an arm extending transversely from the universal bar and positively movable therewith, a bell crank lever having its longitudinally disposed arm connected with the ribbon vibrator, a second bell crank lever, a link connection between it and the other bell crank lever, a swing link connected with the second named bell crank lever and adapted to engage said arm at different points, means independent of the operation of the machine for adjusting said swinging link and thereby determining the extent of movement of the ribbon vibrator and means automatically adjustable with the means for determining the throw of the ribbon vibrator and acting to positively limit its movement.

6. In a visible writing machine, the combination with the carriage shift rail of a bell crank lever pivoted thereon and having one arm connected to the vibrator, a second bell

crank pivoted upon a fixed part of the machine, an operating connection between it and the first named bell crank, a longitudinally arranged part projecting from and movable with a universal bar, a swinging link connection between it and the second named bell crank lever, means for adjusting such swinging link connection to engage said part at different distances from the universal bar, independent of the operation of the machine, to thereby determine the extent of movement of the ribbon vibrator, and means automatically adjustable with the means for determining the throw of the ribbon vibrator and acting to positively limit its movement.

7. A visible writing machine comprising the combination of a ribbon vibrator, means for operating it, means adjustable independent of the printing operation of the machine for controlling the distance through which it is operated and stop devices comprising a rocking part having stop surfaces of different elevation for positively determining the extent of upward movement of the vibrator.

8. A visible writing machine comprising the combination of a ribbon vibrator, means for operating it, means adjustable independently of the printing operation of the machine for controlling the distance through which it is operated and an adjustable stop device having surfaces of different elevation for positively limiting the upward movements of the vibrator.

9. A visible writing machine comprising the combination of a ribbon vibrator, means for operating it, means adjustable independently of the printing operation of the machine for controlling the distance through which it is operated, an adjustable stop device having surfaces of different elevation for positively limiting the upward movements of the vibrator and means for adjusting simultaneously the stop device and said independently adjustable means.

In testimony whereof, I have hereunto subscribed my name.

EDWARD B. HESS.

Witnesses:
JOHN M. LEE,
L. F. BROWNING.