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TYPEWRITING MACHINE

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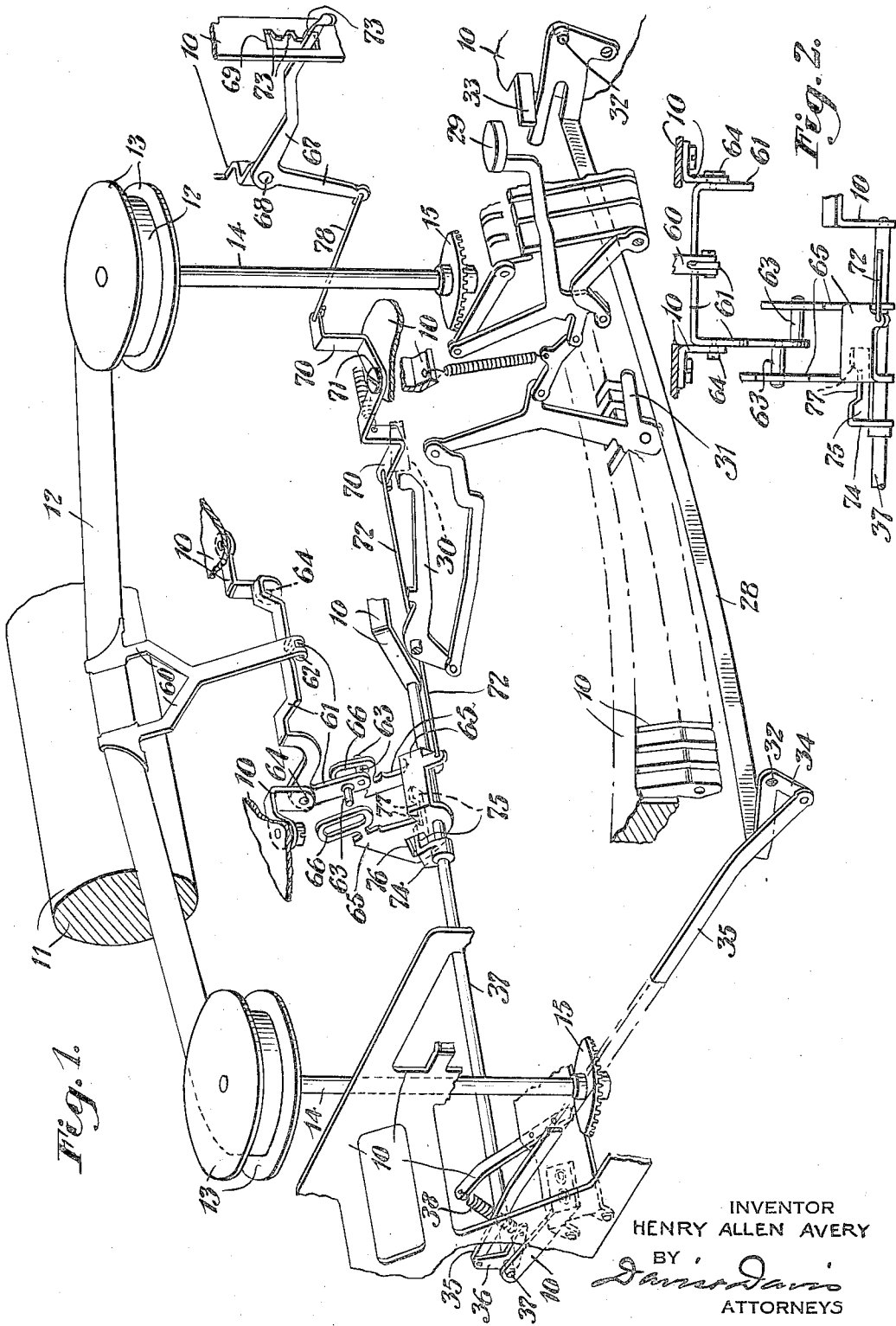


Fig. 1.

Fig. 2.

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## UNITED STATES PATENT OFFICE

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## TYPEWRITING MACHINE

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Original application January 15, 1932, Serial No. 586,724. Divided and this application February 26, 1935, Serial No. 8,245

4 Claims. (Cl. 197—159)

This invention relates to improvements in typewriting machines, and more particularly to improvements in inking ribbon actuating mechanism of such machines.

5 The invention provides a ribbon actuating mechanism for vibrating the ribbon edgewise different extents and preventing such edgewise vibration of the ribbon, which mechanism is characterized by simplicity of construction and  
10 positiveness of operation. The invention also provides a ribbon mechanism especially adapted for embodiment in small and low portable typewriting machines with marked space limitations for a ribbon actuating mechanism having the  
15 aforesaid functions.

In the drawing, in which so much of a portable typewriter of low height is shown as is necessary for an understanding of the invention,

20 Fig. 1 is a fragmentary perspective view of the machine with the several operating parts in idle position; and

Fig. 2 is a detail front elevation of part of the ribbon vibrating means adjusted for stencil typing operation of the machine.

25 The machine, only so much of which is shown as is necessary to understand the construction and operation of the ribbon actuating mechanism, has a fixed or rigid framework of low height on which are mounted the ribbon mechanism and other moving parts of the machine,  
30 such as the platen carriage (not shown), parts of this framework being shown in the drawing, and designated by the reference numeral 10, and a part of the platen being shown at 11.

35 The inking ribbon 12 is wound from one to the other of two ribbon spools 13 forward of the platen, which spools are held on the upper ends of two vertical spool carrying shafts 14 journalled in framework 10 adjacent opposite sides of the  
40 machine and extending close to the bottom of the framework. Each shaft 14 has a bevel gear 15 fixed on its lower end for driving of the shafts alternately by a suitable reversible ribbon feed driving means not shown.

45 The universal bar 28 is operated by a part of each type action. One of the type actions is shown, comprising a type key 29 connected by suitable linkage to actuate a rearwardly swinging type bar 30, one element of the linkage having a lug 31 for depressing the universal bar on the down stroke of the key. The universal bar  
50 has forwardly extending arms journalled on horizontal pivots 32 at opposite sides of the frame, one of which arms normally engages under a stop 33 on the frame.

The universal bar has a pendent extension 34 adjacent its fulcrum connected by a fore-and-aft extending link 35 to an upwardly extending rock arm 36 fixed on the left hand end of a  
5 horizontal rock shaft 37 and having a forward extension connected to the framework 10 by a return spring 38 for the ribbon mechanism and universal bar. Shaft 37 extends transversely of the machine from the left hand side to about the medial vertical plane of the machine and is  
10 journalled in the framework at its ends.

The ribbon 12 passes through the upper end of the usual up and down shiftable ribbon-guide 60 which is shifted to carry the ribbon edgewise  
15 up over the printing point on platen 11 on the down strokes of the keys and retract it from over said point on the return strokes of the keys. According to the present invention the ribbon is vibrated up and down by a ribbon vibrating device comprising said guide 60 and a bellcrank  
20 lever 61 having a forwardly extending arm to which the lower end of the guide is pivoted on a horizontal transverse pivot 62 and a pendent arm having two horizontal pins 63 extending toward different sides of the machine at different dis-  
25 tances from the lever axis.

The lever 61 is pivoted on the frame at 64 to rock about a horizontal transverse axis at a higher level than rock shaft 37 and is operated from said shaft by a fore-and-aft rocking actuator in the form of a yoke 65 having upwardly  
30 extending parallel arms loosely pivoted on shaft 37 for turning about said shaft and sliding axially on the shaft. Each upstanding arm of yoke 65 has a longitudinal slot 66 in its upper  
35 end, the slotted arms being located at opposite sides of the pendent arm of bellcrank lever 61, for reception of one pin 63 in the slot 66 of one arm and reception of the other pin 63 in slot  
40 66 of the other arm to connect the actuator or yoke member 65 to the lever for rocking the lever.

The actuator yoke 65 is axially slidable on the shaft between two fixed limits by manually operable means comprising a bellcrank hand lever 67  
45 pivoted on the frame at the right hand side of the machine on a horizontal transverse pivot 68, with its movement limited by engagement of its forwardly extending handle arm with the ends of a vertical slot 69 in a part of the frame. Lever  
50 67 has a pendent arm connected by a rearwardly extending link 78 to the rightwardly extending arm of a horizontally swinging bellcrank lever 79 pivoted at 71 on the frame and provided with a rearwardly extending arm connected by a horizontal transversely extending link 72 with actu-  
55

ator yoke 65. The handle arm of lever 67 is a laterally springy arm latchable in either of two notches in one vertical wall of slot 69 at opposite ends of slot 69, or in a medial notch in said slot wall, the three notches being designated 73.

A rock arm 74 fixed on rock shaft 37 has a horizontal projection 75, extending longitudinally of the rock shaft, slidably engaged in an aperture 76 in one upstanding arm of actuator yoke 65 between the upper end of said arm and the shaft 37 to key said yoke to the shaft to rock with the shaft except when the yoke is slid midway between the limits of its sliding motion by latching of the handle arm of lever 67 in the medial one of the three notches 73.

In this slidably adjusted medial position of the yoke a notch 77 in the forward edge of projection 75 is opposite the rearwardly facing edge of aperture 76 in the apertured yoke arm, this notch being of sufficient depth to permit shaft 37 to be rocked without rocking the yoke. The spacing of the slotted yoke arms is such that in the medially adjusted position of the yoke 65 both pins 63 (as shown in Fig. 2) are engaged in the yoke arm slots 66 while, when the hand lever 67 is shifted to its upward limit the leftwardly extending pin 63 only is engaged with the yoke, and when the lever 67 is shifted to its downward limit (as shown in Fig. 1) only the rightwardly extending pin 63 is engaged with the yoke.

There is thus a constantly maintained mechanical connection between the shaft 37 and the ribbon guide, the rock arm 74 being always interlocked with the yoke, and the yoke being always interlocked with the ribbon guide vibrating bellcrank, but in the medially adjusted position of the yoke the rocking of the shaft does not vibrate the ribbon. When the left hand pin alone is engaged in a yoke arm slot the ribbon has a greater upward throw than when the right hand pin alone is engaged in a yoke arm slot, the ribbon remaining in lowered position to permit typing of stencils when both pins are engaged in the slots of the yoke arms.

This application is a division of my co-pending application Serial No. 586,724, filed January 15, 1932.

What I claim is:

1. In a visible writing typewriting machine in which the type print at a point on the front portion of the platen, the combination of a ribbon guide movable up and down to carry an inking ribbon over and retract it from the printing point, a bell-crank lever having a forwardly extending arm to which the guide is pivoted and a pendent arm having two projections located different distances from the lever axis and extending toward opposite sides of the machine, said lever being pivotally supported to swing about a horizontal axis extending transversely of the machine, a horizontal rock shaft extending transversely of the machine below said lever axis

and projections, key-operated means for rocking said shaft, a yoke having two upstanding arms loosely pivoted at their lower ends on said rock shaft and slidably along said shaft, each yoke arm having a longitudinal slot for receiving one of said projections on the bell-crank lever and one of said yoke arms having an aperture therein, a rock arm on said rock shaft having a projection extending longitudinally of said shaft, and manually operable means connected with said yoke for shifting said yoke longitudinally of the shaft from one to the other of two limits of axial sliding movement of the yoke on the shaft in both of which the projection on said rock shaft is engaged in said yoke arm aperture to rock the yoke with the shaft and in each of which a different one of said lever projections is engaged in the slot of a different one of the yoke arms to thereby vary the up and down throw of the ribbon guide.

2. In a visible writing typewriting machine, the combination of a ribbon guide for vibrating the inking edgewise ribbon to cover and uncover the printing point, a ribbon guide vibrating lever having two oppositely extending projections parallel with and different distances from the lever axis, a key operated rock shaft parallel with the lever axis, a rock arm fixed on said rock shaft and having a projection parallel with the rock shaft, a member having two parallel connected arms pivoted and axially slidable on the rock shaft and extending toward said lever projections, one of said member arms having an aperture through which said rock arm projection slidably extends, the two arms of said member extending at opposite sides of the projection carrying portion of said lever and each having a longitudinal slot therein for insertion of the adjacent lever projection through the arm to connect the arm and lever for vibrating the lever, and manually shiftable means connected with said member for sliding the member along the rock shaft to disconnect one of its arms from one pin and connect its other arm with the other pin without disengaging said rock arm projection from the aperture in said member.

3. A typewriting machine as claimed in claim 2, wherein said pivoted and axially slidable member is slidable by said manually shiftable means to an intermediate position in which said rock arm and its projection are ineffective to rock said member when the rock shaft is rocked.

4. A typewriting machine as claimed in claim 2, wherein said pivoted and axially slidable member is axially slidable by said manually shiftable means to an intermediate position in which both pins are engaged in the arm slots of said member and in which the projection on said rock arm is notched to vibrate in the apertured arm of said member, without rocking the member when the member is in said intermediate position.

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