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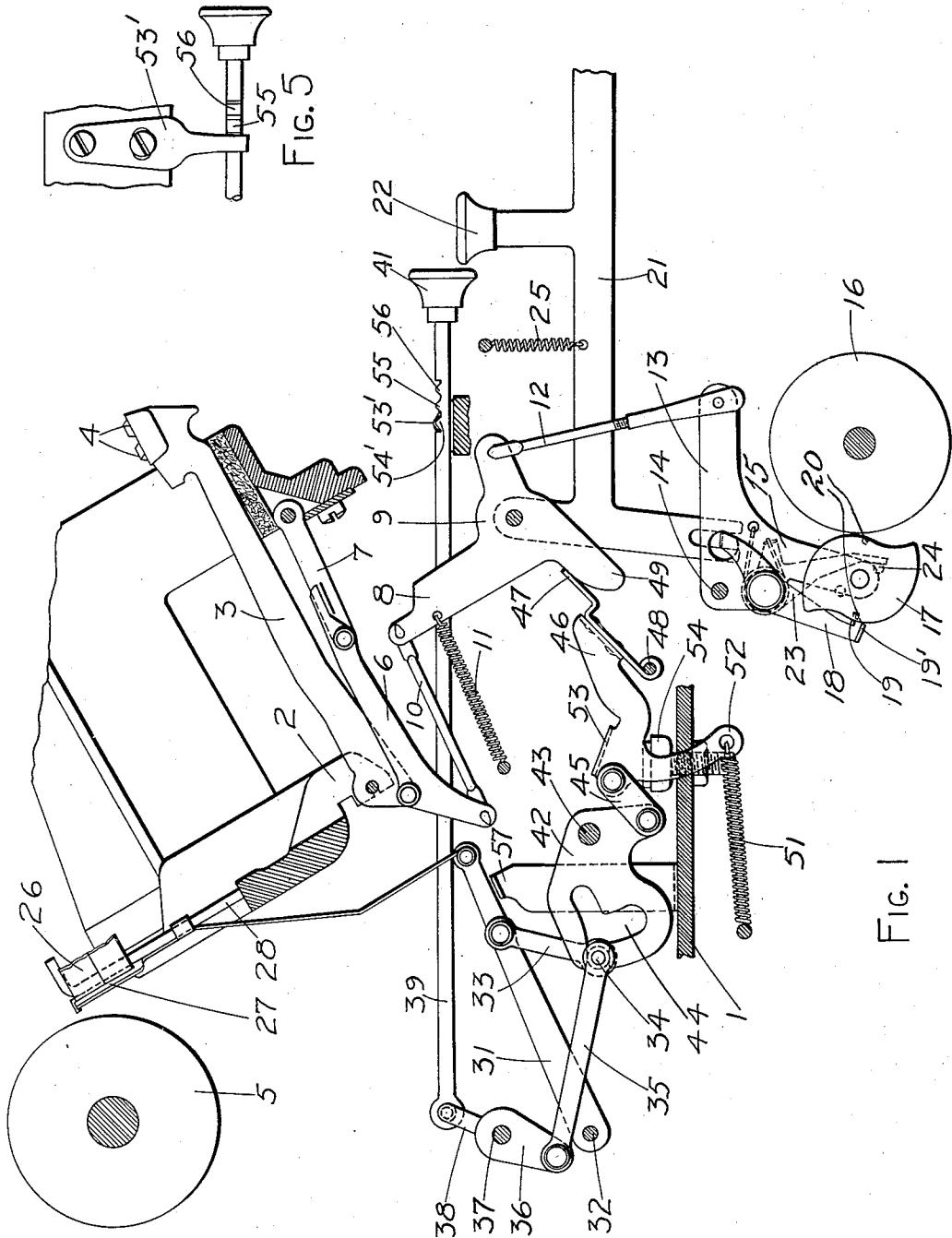
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1,937,048

TYPEWRITING MACHINE

Filed April 24, 1931

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

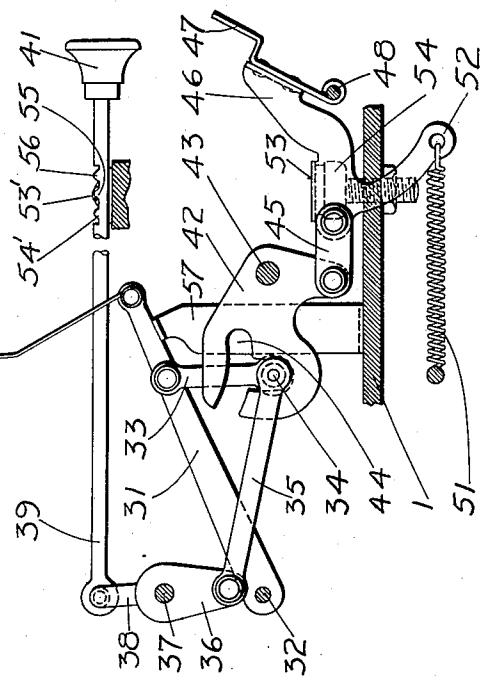
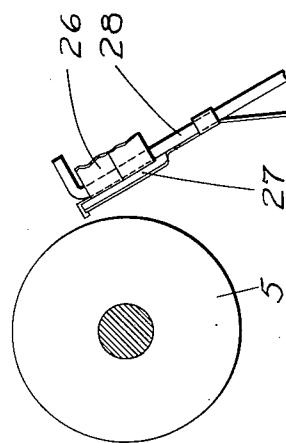


FIG. 3

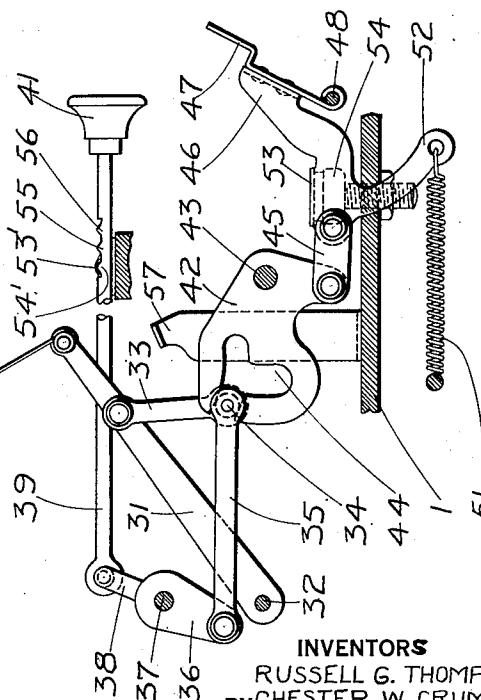
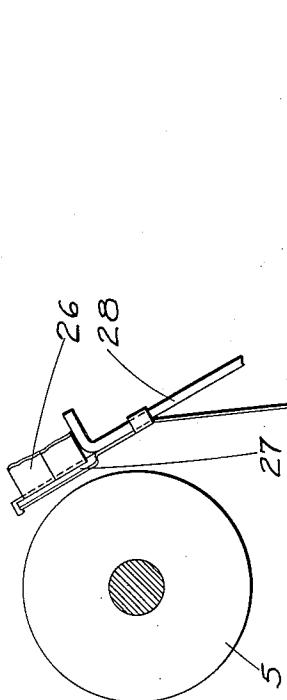


FIG. 2

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3 Sheets-Sheet 3

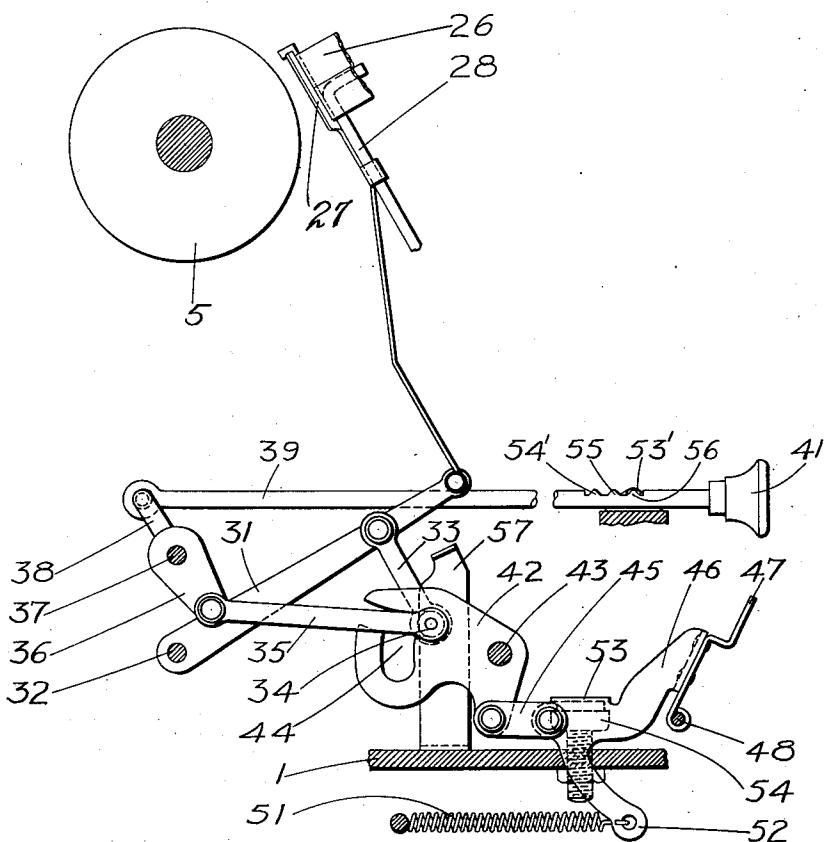


FIG. 4

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TYPEWRITING MACHINE

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Application April 24, 1931. Serial No. 532,540

4 Claims. (Cl. 197—159)

This invention relates to improvements in type-writing machines, and particularly to devices for vibrating or moving the ribbon to and from the printing point during each actuation of a type bar in so-called "visible writing" machines.

The principal object of the invention is the provision of a simple device for vibrating the ribbon, that is not liable to get out of order when rapidly actuated either by hand or power driven devices.

Another object of the invention is the provision of a ribbon vibrator which is operable to position either color of a bichrome ribbon properly at the printing point or which may be rendered inoperative when a stencil is to be written, simple key controlled means being provided for selectively determining the operation of the vibrator.

To these and other ends, the invention consists in the construction and arrangement of parts that will appear from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims at the end of the specification.

25 In the drawings:

Fig. 1 is a transverse vertical section of a type-writing machine, parts being shown in side elevation and illustrating one possible embodiment of the invention;

30 Fig. 2 is a similar view of the ribbon vibrating devices showing parts in another position;

Fig. 3 is a view similar to Fig. 2 but showing parts in another position of adjustment;

Fig. 4 is a similar view showing parts in still 35 another position of adjustment, and

Fig. 5 is a fragmentary plan view of a resilient adjustable device for retaining the parts in adjusted position.

Referring specifically to the drawings, in which 40 similar reference numerals refer to the same part in all the figures, 1 indicates the frame of a type-writing machine in which a type basket 2 is shiftably mounted. Type bars having types 4, one of which is shown at 3, are pivotally mounted 45 in the type basket and are movable to engage their types with the printing point on a platen 5. Key controlled devices are provided for actuating the type bars.

In the well known type of machine illustrated, 50 said devices are actuated by power driven means. Pivotally connected with the type bar is a toggle lever 6, pivotally connected at one end to an arm 7 and having its other end connected to an arm 8 of a bell crank lever 9 by means of the 55 link 10. A spring 11 connects the arm 8 with a

fixed part and resiliently retains the lever in normal position with the type bar retracted from the platen. A link 12 operatively connects the bell crank lever with the power driven devices.

The link 12 is pivoted to an arm 13 of a bell crank pivoted at 14 in the frame of the machine, and having an arm 15 arranged adjacent the surface of a power driven roller 16. A cam 17 is revolvably mounted on the arm 15 and normally held out of engagement with the roller 16 by 60 one or another of a pair of oppositely arranged stops 20 projecting from the cam. A key lever 21 having a key 22 is pivotally mounted in the frame and operatively connected with the lever 18 for swinging it to disengage the stop 20 on the cam, when a spring-pressed arm 23 also pivoted on the arm 15 and engaging a lug or projection 24 on the cam operates to turn the cam into engagement with the power driven roller. A spring 25 connects the key lever with a 70 fixed part and resiliently returns the key lever and with it the lever 18 to normal position. The cam 17 is rotated through one half a revolution by the roller 16 when the other stop 20 engages the stop 19, or a stop 19' on the lever 18 if the key is held depressed. During such rotation, the cam swings the bell crank to depress the link 12 and actuate the bell crank 9 to swing the type bar into engagement with the platen.

In visible writing machines, an inking ribbon 85 is interposed between the types and the platen or the work sheet thereon when the type bar is actuated for writing, and is again withdrawn when the type bar moves from the platen to expose to view the characters written thereby. 90 To this end, a ribbon 26, which may be of the bichrome type, is threaded through a vibrator 27 slidably mounted on a rod 28 on the type basket and may provide the usual type guide at its upper extremity. The vibrator is preferably constructed of resilient sheet material and is pivotally mounted on the forward end of a lever 31 pivoted on a fixed part at 32. A link 33 is pivoted at one end to the lever 31, and at its other end is connected with a pivot stud 34 mounted in the free end of a link 35 pivotally connected with an arm 36 fixed on a rock shaft 37 extending transversely of the machine. At one end, an arm 38 is fixed to the rock shaft 37 and pivotally connected to the rear end of a push rod 39 100 extending forwardly therefrom to the front of the machine and having a key 41 at its front end whereby it may be manually operated. A slotted actuator 42 is pivoted at 43 in the frame of the machine and has a branched slot 44 there-

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in open at its rear end and having one branch substantially concentric with the axis of the actuator whereby it operatively engages the stud 34 and in which the stud is adjustable. A link 45 operatively connects the actuator 42 with an arm 46 projecting rearwardly from a universal bar 47 pivotally mounted on a fixed part of the frame at 48. The universal bar 47 extends transversely of the machine and is engaged by an arm 49 on each of the bell crank levers 9, so that the universal bar is actuated each time a bell crank lever 9 is operated to print a character.

Assuming the parts to be in the position shown in Fig. 1, when a key lever 22 is depressed, the power driven devices are set in motion to swing the bell crank 9 and move the type bar into engagement with the platen. Movement of the bell crank 9 is transmitted to the universal bar which is moved thereby from the Fig. 1 position 0 to that shown in Fig. 2, and swings the actuator 42, to swing the arm 31 through the link 33 to raise the ribbon vibrator 27 to the printing point on the platen. With the parts adjusted as shown in Figs. 1 and 2, that is, when the stud 34 occupies a position in the rear branch of the slot 44, the lower or red band of the ribbon moves to the printing point on the platen to print. A spring 51 connects a downwardly projecting arm 52 on the arm 46 with a fixed part and tends to resiliently retain the universal bar in engagement with the arms 49 on the bell cranks 9. A stop 53 on the arm 46 is arranged to engage a stop 54 adjustably mounted in the frame when the universal bar is actuated, and serves to limit the movement of the universal bar and prevent overthrow. It will be noted that the arm 49 has a curved surface on which the universal bar bears, by which arrangement the arm 49 rolls on the universal bar so that the vibrator is moved by a steady gradual movement, free from sudden accelerations to and from the printing point on the platen. It will also be noted that when the universal bar reaches the limit of its movement, as shown in Fig. 2, the pivots of the link 45 are in substantial alinement with the pivot of the universal bar, causing a dwell in the movement of the parts when in this position, resulting in a pause in the movement of the ribbon when it reaches the printing point and is engaged by the type, whereby by a clear, even-toned impression is obtained on the work sheet.

In the position of the parts shown in Figs. 1 and 2, the push rod 39 occupies its forward position, in which it is retained by means of a resilient retaining member 53' projecting from the frame of the machine and engaging the rearmost tooth 54' of three teeth 54', 55 and 56 provided on the push rod, and corresponding to the three operative positions to which it may be moved. In order to insure accurate positioning of the parts controlled by the push rod, the retaining member 53' is adjustably mounted on the frame and secured in adjusted position by means of a screw arranged in a slot, as shown. If the rod 39 is moved inwardly from the Fig. 1 position to that shown in Fig. 3, which is the "stenciling" position, the tooth 54' moves out of engagement with the retaining member which now resiliently engages the middle tooth 55. This movement 70 swings the rock shaft 37 from the Fig. 2 to the Fig. 3 position, and moves the stud 34 to a position in alinement with the lower branch of the slot 44 and allows the arm 31 and with it the vibrator to move downwardly into engagement with a stop 57 mounted on the frame of the machine,

With the parts in this position, when the actuator 42 is operated, no motion is imparted to the arm 31, and hence the vibrator is not moved to interpose the ribbon between the type and the platen. During such movement, the arm 31 rests on the stop 57.

If the push rod 39 is again moved rearwardly from the Fig. 3 position until the retaining member engages the tooth 56, the arm 36 is moved to the Fig. 4 position and swings the stud 34 into the forward branch of the slot 44, and the arm 31 is again elevated from the stop 57. When now the universal bar is actuated to operate the actuator 42, the arm 31 is elevated, but since the stud 34 now engages the actuator at a point nearer its pivotal center, the arm 31 swings through a smaller arc and the ribbon vibrator is moved to only such an extent as is required to interpose the black or upper band of the ribbon between the type and the printing point on the platen.

Although only one embodiment of the invention is shown and described herein, it will be understood that this application is intended to cover such changes or modifications as come within the spirit of the invention or scope of the following claims.

We claim:

1. In a typewriting machine, the combination of a platen, a type bar movable to and from printing engagement therewith, a type basket in which said type bar is mounted, a ribbon vibrator movably mounted on the type basket, key controlled means for moving the type bar to and from operative engagement with the platen, a pivoted universal bar actuated by said key controlled means, an actuator operatively connected with the ribbon vibrator, and a link pivotally connected at its ends to the actuator and universal bar, the arrangement being such that the pivots of the link move to and from substantial alinement with the pivotal center of the universal bar when the latter is actuated.

2. In a typewriting machine, the combination of a platen, a type bar movable to and from printing engagement therewith, a type basket in which said type bar is mounted, a ribbon vibrator movably mounted on the type basket, key controlled means for moving the type bar to and from operative engagement with the platen, a pivoted universal bar actuated by said key controlled means, an actuator operatively connected with the ribbon vibrator, a link pivotally connected at its ends to the actuator and the universal bar, and a stop adjustably mounted on the frame of the machine to cooperate with the universal bar and stop its movement when the pivots of said link are in alinement with its pivot.

3. In a typewriting machine, the combination of a platen, a type bar movable to and from printing engagement with the platen, power operated means for actuating said type bar, a ribbon vibrator movable to and from the printing point on the platen, a universal bar operatively engaged by said power operated means, an actuator for operating the ribbon vibrator, and a link pivoted at one end to the universal bar and at its other end to said actuator and so arranged that its pivots are in substantial alinement with the axis of the universal bar when the latter reaches the limit of its movement under the action of said power operated means.

4. In a typewriting machine, the combination of a platen, a type bar movable to and from printing engagement with the platen, key con-

trolled means for actuating the type bar, a bell crank lever operatively connecting said key controlled means with the type bar, a ribbon vibrator movable to and from the printing point on the 5 platen, a universal bar, an arm on said bell crank having a curved surface adapted to roll on the

universal bar for actuating the same, and means operatively connecting said universal bar with the ribbon vibrator.

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