May 25, 1948. A. E. DAVIS 2,442,233

RIBBON GUIDE FOR TYPEWRITERS OR LIKE MACHINES

Filed May 2, 1946 2 Sheets-Sheet 1

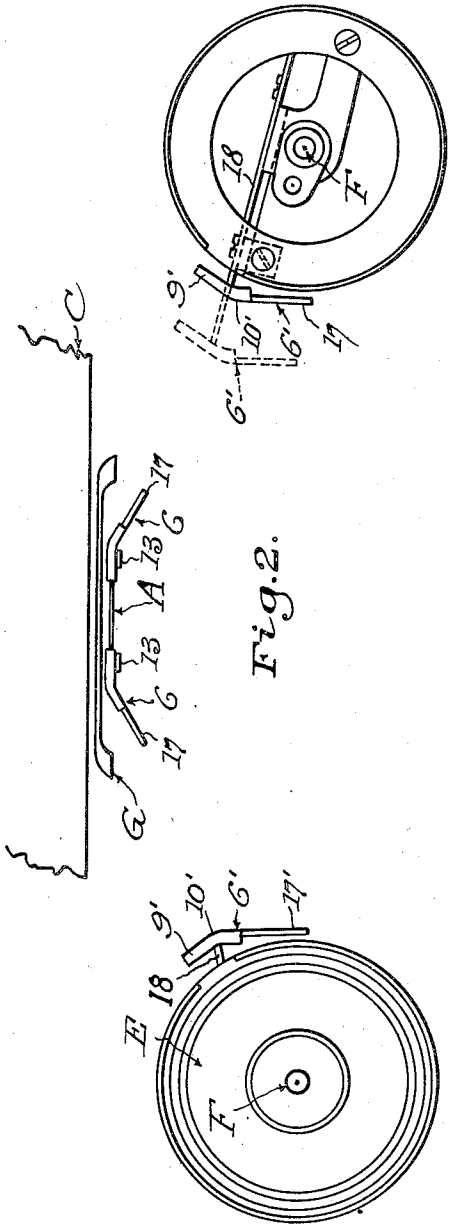


Fig. 2.

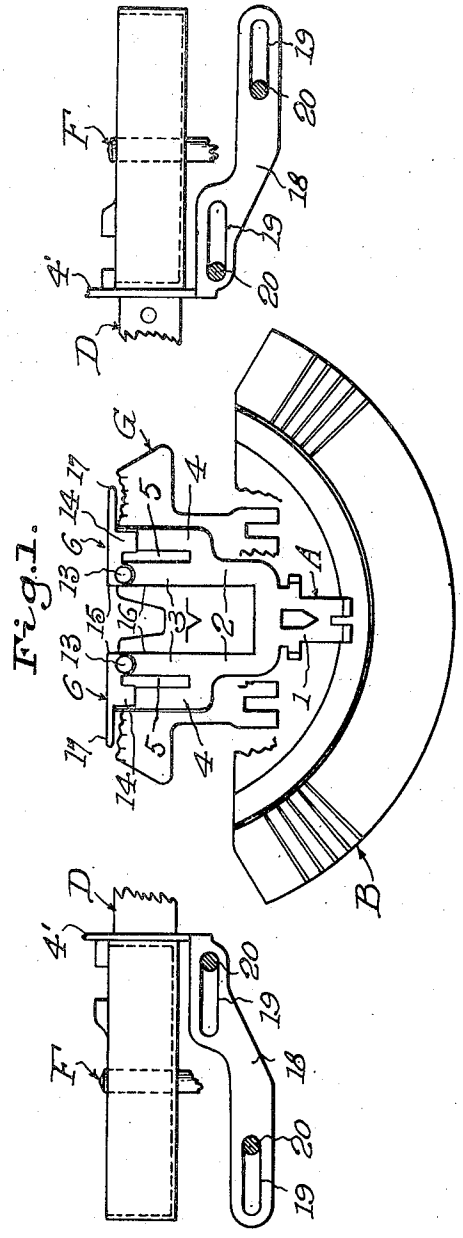


Fig. 1.

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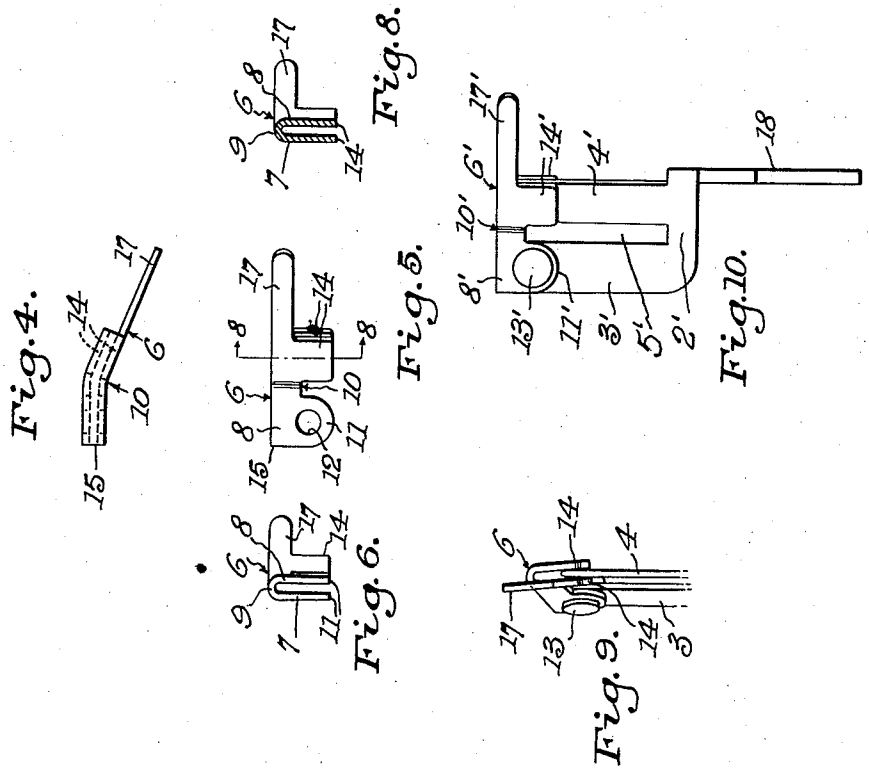


Fig. 3.

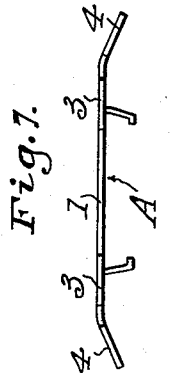


Fig. 7.

Fig. 8.

Fig. 4.

Fig. 5.

Fig. 10.

Fig. 6.

Fig. 9.

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UNITED STATES PATENT OFFICE

2,442,233

RIBBON GUIDE FOR TYPEWRITERS OR LIKE MACHINES

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Application May 2, 1946, Serial No. 666,743

5 Claims. (Cl. 197—170)

1

This invention relates to ribbon guides for type-writer or like machines, and more particularly to guides of the class referred to which are constructed or equipped to facilitate introducing a ribbon into the guide.

It is well known that commonly used conventional typewriter ribbon guides, for example those embodied in ribbon vibrators or in connection with ribbon reversing mechanism, are so constructed as to require the ribbon to be threaded lengthwise through the guide opening or to be slipped edgewise through a narrow entrance slot leading to the guide opening. This requires rather awkward fingering and handling of the ribbon with consequent loss of time and soiling of the operator's fingers. The same difficulties are encountered in removing an old ribbon.

An object of the present invention is to provide a ribbon guide of the general class referred to including improved means such as a latch or retainer for holding the ribbon against displacement from the guide slot, and which may be moved relatively to the other guide part or parts so as to facilitate inserting a ribbon in or removing it from the guide slot.

Another object of the invention is to provide a guide of the character stated in which the latch or retainer is of improved construction, and is so related to other parts of the guide as to be movable between two definite limit positions determined by stops to prevent damaging of the parts, which otherwise could occur if the latch or retainer were inadvertently to be forced beyond its normal range of movement.

Another object of the invention is to provide a ribbon guide of the kind described including simple and effective means for releasably holding the latch or retainer in closed position.

Another object of the invention is to provide a ribbon guide of the character referred to adapted for use in connection with typewriter ribbon vibrators and ribbon reversing mechanism.

Other objects will become apparent from a reading of the following description, the appended claims, and the accompanying drawings in which:

Figure 1 is a fragmentary front elevational view showing the improved ribbon guide embodied in a typewriter ribbon vibrator and ribbon reversing mechanism, and showing the relation of these parts to certain conventional parts of a typewriter, ribbon latches or retainers being shown in closed positions;

Figure 2 is a top plan view of the parts shown

2

in Figure 1 and showing additionally a portion of the typewriter platen or printing cylinder;

Figure 3 is a front elevational view of the ribbon vibrator and associated ribbon latches drawn on an enlarged scale and showing the latches in open positions;

Figure 4 is a top plan view of a ribbon latch or retainer;

Figure 5 is a front elevational view of the latch or retainer shown in Figure 4;

Figure 6 is an elevational view of the latch or retainer as seen from the left of Figure 5;

Figure 7 is a top plan view of the ribbon vibrator with the latching or retaining fingers omitted;

Figure 8 is a section on the line 8—8 of Figure 5;

Figure 9 is an enlarged fragmentary view showing in detail the relative positions occupied by a ribbon latch and relatively fixed ribbon guide part when the latch first engages the guide part during movement towards closed position; and

Figure 10 is an elevation drawn on an enlarged scale and showing ribbon guiding means associated with a ribbon reversing actuator as shown at the right in Figures 1 and 2.

Ribbon guides having some features in common with the guide disclosed herein are disclosed in the co-pending applications of David H. Collins, Ser. No. 666,742, filed May 2, 1946; Lewis C. Myers and William Graepel, Ser. No. 666,744, filed May 2, 1946; and Lewis C. Myers, Ser. No. 692,971, filed August 26, 1946.

A preferred form of improved ribbon guide constructed in accordance with the invention is shown in Figures 1 to 9 inclusive as being embodied in a ribbon vibrator A mounted for vertical reciprocation with respect to a conventional type bar segment B and printing cylinder or platen C. A typewriter ribbon D is shown as extending between ribbon spools E—E mounted respectively on shafts F—F; and a card guide scale is shown at G.

With the exception of the ribbon guide means with which it is provided, the ribbon vibrator A is of the form employed in Royal typewriters, but it may be of other form or construction and it will be understood that guide means constructed in accordance with the invention may be embodied in typewriter parts other than ribbon vibrators and may be used in typewriters of different makes or constructions.

The ribbon vibrator A includes a lower stem portion 1 and two guide proper portions generally designated 2—2 spaced from each other above

the stem portion 1 and being disposed in front of the writing line of the platen C. Each guide portion 2 comprises two mutually spaced upstanding finger parts 3 and 4 between which is an open top ribbon guiding slot 5. In use, the ribbon D extends in front of the outer fingers 4—4 through the slots 5—5, and behind the inner fingers 3—3.

The tops of the slots 5—5 may be closed by ribbon latches or retainers 6—6 when a ribbon is in place and the machine is conditioned for operation. Each latch 6 preferably is formed of sheet metal cut and bent or pressed to the novel form shown in detail in Figures 4 to 8 inclusive. Each latch 6 comprises a plate bent or formed to channel shape or section with opposed flanges 7 and 8 and a connecting portion 9. The channel sections are bent transversely as at 10 to conform to or align respectively with the pairs of finger parts 3 and 4 which, as shown in Figure 7, are disposed in planes inclined with respect to each other.

Each latch 6 is formed with flange extensions or ears 11—11 depending from the respective flanges. The ears 11—11 of each latch 6 are apertured as at 12 for receiving a pin 13 by which the latch is mounted pivotally on one of the inner guide fingers 3. Each latch 6 also is formed with opposed flange extensions or ears 14—14 adapted to embrace and engage opposite faces of the associated outer guide fingers 4 with face-to-face frictional contact when the latch is in the closed position shown in Figure 1. The planes of the flange extensions 14—14 are at a moderate inclination to the axis of the pivot pin 13, due to the bend 10 in the latch.

In accordance with the invention, novel and improved means are incorporated in the ribbon guide and latch construction for determining the limits of movement of the latches 6—6 so as to prevent damaging of the parts which otherwise could result from over-movement of the latches. The arrangement is such that the inside of the connecting portion 9 of each latch 6 engages the top edge of the associated outer guide part 4 when the latches are in the substantially level, closed positions shown in Figure 1. When the latches 6 are in the fully open positions shown in Figure 3, the inner ends 15 of their connecting portions 9 engage the inner vertical edges 16 of the guide parts 3, thus preventing the latches from being swung too far inwardly where they could engage each other and become laterally bent or stuck together. The construction, relative arrangement, and mounting of the parts are such that when the latches 6 are in the open positions shown in Figure 3, the ears 14—14 are disposed entirely out of the lines of the associated guide slots 5, thereby leaving the slots completely unobstructed and facilitating insertion of the ribbon.

Preferably, the latches 6 are formed with finger pieces 17 which facilitate manipulation of the latches.

In use, when it is desired to insert a ribbon in the slots 5—5, the latches 6—6 are moved to the open positions shown in Figure 3, in which they are stopped by engagement of the latch inner end parts 15 with the edges 16 of the guide parts 3. The slots 5—5 will then be completely open at their upper ends and the ribbon may be inserted without difficulty. The latches may then be moved to the positions shown in Figure 1 in which they act as ribbon retainers. By referring to Figure 9, it will be seen that

when the flange portions or ears 14—14 begin to pass over the upper ends of the fingers 4—4, the central planes between the ears are inclined with respect to the planes of the respectively associated fingers 4—4. This is due to the mutual inclination of the fingers 3 and 4 and the bends 10 in the latches 6. The result is that when the latches are forced from the Figure 9 position downwardly, i. e., towards closed position, the ears or flange parts 14—14 have to be sprung apart slightly. When the latches are in completely closed position, the central planes of the pairs of ears 14—14 are parallel to the associated fingers 4—4 and the ears lie in flat or planar face-to-face frictional contact with opposite sides of the fingers. When the latches are moved from closed position toward open position, they must pass through the position shown in Figure 9; and in this position the ears 14—14 engage the fingers 4 more forcibly. Consequently, the latches will be held securely, although releasably, in closed position even if, in time, the parts should wear enough to produce a slight clearance between the fingers 4 and the latch ears 14—14 in their fully closed positions.

Figures 1, 2 and 10 show one other of the many constructions in which the invention may be embodied. As is well known, some typewriters are equipped with ribbon reversing mechanism in which a part for actuating the reversing gears or control train therefor is moved by a button or projection on the ribbon when the ribbon has been nearly unwound from one spool. Figures 1 and 2 show such reversing actuators 18—18 mounted in connection with or adjacent the ribbon spool shafts F. The actuators 18 are adapted to be connected to other parts of the reversing mechanism (not shown) which may be of known construction, for example a construction of the kind shown in United States Patent 2,050,177 to Handley. The actuators 18 are formed respectively with the two slots 19—19 which receive fixed pins or bars 20—20 to mount the actuators for sliding movements. Each actuator 18 is formed with an upstanding projection 2' comprising finger or guide parts 3'—4' delineating an open ended guide slot 5'. Latches 6'—6', the same in construction as the latches 6 mounted on the ribbon vibrator A, are pivotally mounted by pins 13' on the fingers or guide parts 3' and are adapted to be frictionally held in closed position in contact with the guide parts 4' and to be movable to open position in the manner previously described with reference to the latches 6. Parts of the latches 6' are designated by primed numerals similar to the unprimed numerals designating corresponding parts of the latches 6.

The construction disclosed embodies the invention in its preferred form, but it will be understood that changes may be made without departing from the invention as defined in the claims.

I claim:

1. In a ribbon guide for a typewriter or like machine, a guide proper comprising two spaced parts forming the sides of an intervening guide slot; a channel shaped ribbon latch comprising opposed flanges and a connecting portion; and means pivotally mounting said latch on one of said guide parts with said flanges being disposed on opposite sides of said one of said guide parts, said latch being movable to open position for enabling a ribbon to be inserted edgewise into said slot and to closed position in which said

latch extends across said slot with said flanges being disposed on opposite sides of and frictionally engaging the other of said guide parts.

2. In a ribbon guide for a typewriter or like machine, a guide proper comprising two spaced parts forming the sides of an intervening guide slot; a channel shaped ribbon latch comprising opposed flanges and a connecting portion; and means pivotally mounting said latch on one of said guide parts with said flanges being disposed on opposite sides of said one of said guide parts, said latch being movable to open position for enabling a ribbon to be inserted edgewise into said slot and to closed position in which said latch extends across said slot with said flanges being disposed on opposite sides of and frictionally engaging the other of said guide parts, said connecting portion of said latch engaging the end of said other of said guide parts when said latch is in closed position for preventing movement of said latch beyond a predetermined closed position.

3. In a ribbon guide for a typewriter or like machine, a guide proper comprising two spaced parts forming the sides of an intervening guide slot; a channel shaped ribbon latch comprising opposed flanges and a connecting portion; and means pivotally mounting said latch on one of said guide parts with said flanges being disposed on opposite sides of said one of said guide parts, said latch being movable to open position for enabling a ribbon to be inserted edgewise into said slot and to closed position in which said latch extends across said slot with said flanges being disposed on opposite sides of and frictionally engaging the other of said guide parts, the end of said connecting portion of said latch adjacent said pivotal connection being engageable with said one of said guide parts when said latch is moved to open position for stopping such movement when the entire latch is completely out of the line of said slot.

4. In a ribbon guide for a typewriter or like machine, a guide proper comprising two spaced parts forming the sides of an intervening guide slot; a ribbon latch; and means pivotally mounting said latch on one of said guide parts to move to a closed position in which it projects across the end of said slot and to an open position in which the end of the slot is left open for edgewise insertion of a ribbon, said latch having two spaced opposed portions adapted to have frictional engagement respectively with opposite faces of the other of said guide parts for releasably holding said latch in closed position.

5. In a ribbon guide for a typewriter or like machine, a guide proper comprising two spaced parts forming the sides of an intervening guide slot and being disposed respectively in planes which are inclined with respect to each other; a ribbon latch; and means pivotally mounting said latch on one of said guide parts to move to a closed position in which it projects across the end of said slot and to an open position in which the end of the slot is left open for edgewise insertion of a ribbon, said latch having two spaced flat opposed portions adapted to have face-to-face frictional contact respectively with opposite faces of the other of said guide parts for releasably holding said latch in closed position, the axis of said pivotal mounting means being at a moderate inclination to the planes of said flat opposed portions, whereby when the latch is moved toward closed position said portions will first engage said opposite guide part faces with the planes of said portions inclined with respect to the planes of said opposite guide part faces.

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