

March 29, 1960

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2,930,469

TYPEWRITER RIBBON GUARD AND MOUNTING

Filed Jan. 17, 1958

2 Sheets-Sheet 2

FIG. 10.

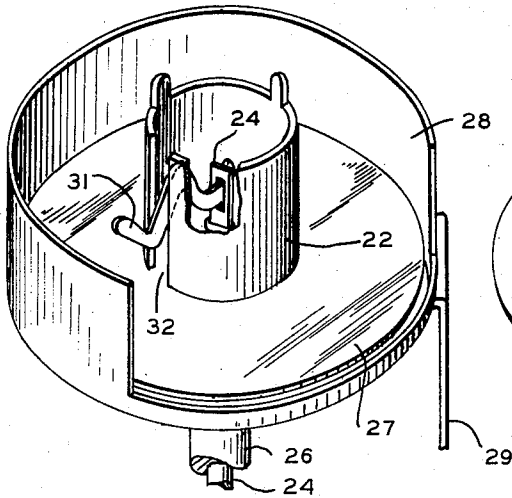


FIG. 12.

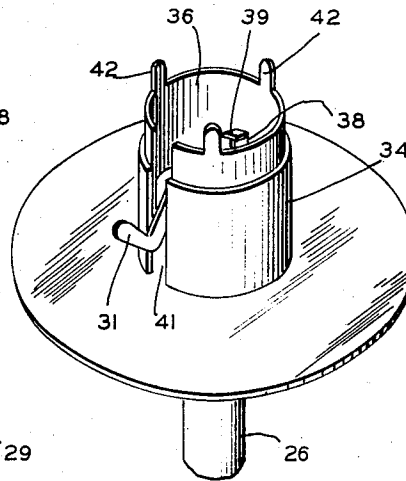


FIG. 8.

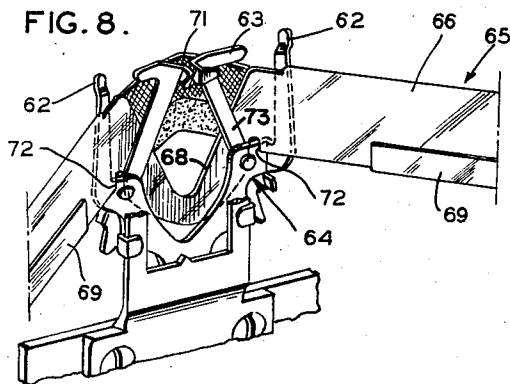


FIG. 11.

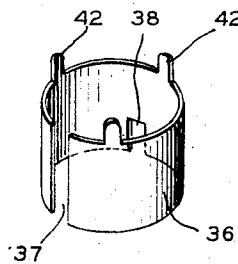


FIG. 13.

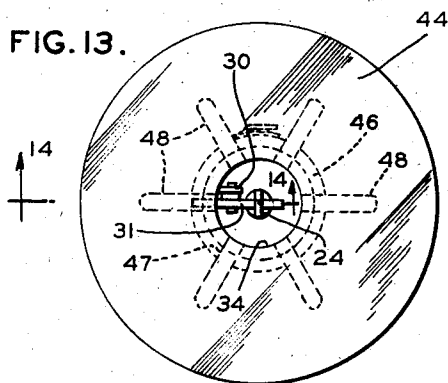
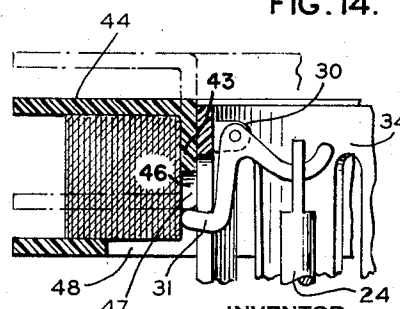


FIG. 14.



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TYPEWRITER RIBBON GUARD AND MOUNTING

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Application January 17, 1958, Serial No. 709,582

11 Claims. (Cl. 197—151)

This invention relates to ink ribbons and means for mounting the same in the ribbon feeding mechanisms of typewriters or like machines.

An important object of the invention is to provide a ribbon and spool package which will facilitate the changing of a typewriter ribbon without soiling the fingers of the typist.

A further object is to provide means for adapting the ribbon spools to the ribbon feed mechanisms of different machines without the need of altering the structures of these mechanisms.

A still further object of the invention is to provide guard means that will enable the typist to thread the ribbon through the vibrator without soiling the fingers and will prevent wrinkling or twisting of the ribbon during adjustment.

Still further objects of the invention include the provision of means for mounting the ribbon on a vibrator having guide arms that are opened by the fingers for insertion of the ribbon and are thereafter closed by the initial typing action; to provide an ink ribbon spool package from which interengaging spools can be readily removed and pulled apart a predetermined amount so that they can be dropped into the spool cups and at the same time be adjusted so that guards thereon will be properly positioned to fit on the ribbon vibrator; to provide a combination guard and guide structure that permits manipulation of the ribbon without soiling the fingers; to provide a spool that can be dropped into position in the spool holder to be engaged automatically by a ribbon feed and reversing member; and to provide a one piece guard that can be used to tauten the ribbon for quick and easy positioning in the vibrator.

With these and other objects in view, the invention comprises certain constructions hereinafter described and then particularly pointed out in the claims, preferred embodiments of the invention being illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of a double spool as it would appear when removed from the wrapper,

Figure 2 is a view similar to Figure 1 showing the spools drawn apart preparatory to being placed in the spool holders,

Figure 3 is a front view of the upper portion of a ribbon vibrator shown with the ribbon retaining arms in open position and the ribbon of Figure 2 in place,

Figure 4 is a view similar to Figure 3 showing the arms of the vibrator in closed position about the ribbon,

Figure 5 is a view in perspective of a combination ribbon guide and guard with a fragment of the ribbon passing therethrough,

Figure 6 is a plan view of the blank of material from which the combination guide and guard is made,

Figure 7 is a front view of a modified form of ribbon guide and guard means,

Figure 8 is a view in perspective of the ribbon vibrator shown in Figure 3 with the ribbon guide of Figure 7 applied thereto,

Figure 9 is an enlarged section taken on the line 9—9 of Figure 2 showing how the spool is mounted in a holder,

Figure 10 is a view in perspective of one form of ribbon spool holder showing the ribbon reverse detector,

Figure 11 is a view in perspective of an adapter, for use with a holder, to rotate the spool,

Figure 12 is a view in perspective showing the adapter of Figure 11 applied to a standard form of spool holder,

Figure 13 is a plan view of a ribbon spool adapted to be used with the form of holder shown in Figure 12 but without the need of an adapter, and

Figure 14 is a section taken on the line 14—14 of Figure 13.

Referring to the drawings in detail, 10 indicates a pair of ribbon spools which may be sold nested as a package unit so that they can be used to replace a worn-out ribbon and then, in turn, be disposed of. An ink ribbon 11, substantially half of which is wound on each spool 12, has most of the exposed portion thereof covered by a combination guard and guide means 13 which will serve to protect the fingers of the typist from soiling by the ribbon, and will facilitate the insertion of the ribbon into the vibrator without wrinkling or twisting.

Each spool 12, upon which the ribbon 11 is wound, is preferably made of plastic material molded to provide a thimble 14 (Fig. 9) and upper and lower flanges 16 and 17, respectively. The thimble has a closed top 18 having a circularly arranged row of holes 19 for receiving drive pins or tabs 21 extending from the top edge of a hub 22 of a ribbon feed and support mechanism 23 of well known construction. The ribbon feed and reverse mechanism shown in Figs. 9—12, includes a reverse shaft 24 supported in a gear driven tube 26, on whose upper end is formed a disk 27 resting in the bottom of a spool cup 28 supported on any suitable part of the typewriter frame by a bracket 29.

The upper end of the shaft 24 has pivoted thereto a bell crank detector or finger 31 whose rounded free end passes through a slot 32 in the hub 22 to the latter of which the detector is pivoted through a suitable bracket 30.

The outer or free end of the detector also passes through any one of a number of peripherally spaced slots 33, formed in the lower or open end of the thimble 14 and in the lower spool flange 17, and presses against the inner reach of the ribbon 11. When the latter is unwound, the bell crank or detector 31 drops the reverse shaft 24 to engage a cam on an operating shaft which is shifted endwise to condition a clutch and reverse the feed of the ribbon. One of the pins 21, of each hub 22, is aligned with the slots 32 and 33 so that the spools can be properly positioned without adjustment on the part of the operator and the pins also relieve the detector of the load of driving the spool.

In another form of structure, as shown in Fig. 12, the hub 34 is not provided with drive pins or tabs and in order to fit the spool unit to a typewriter having this condition, use is made of an adapter 36 of open ended sleeve shape having a vertical slot 37 and a notch 38, which fits over a tab 39, punched inwardly in the wall of the hub 34. This notch and tab combination aligns the slot 37 with a slot 41 of the hub 34 and also positions the adapter at the proper height. The upper edge of the adapter 36 is provided with tabs or pins 42 which engage the holes 19 of the spools to feed the ribbon.

The use of an adapter, as well as drive pins or tabs, is obviated in the form of ribbon spool shown in Figs. 13 and 14 in which the hub 43 of a spool 44, made of plastic material, is provided with annularly spaced slots 46 having connecting vertical and horizontal portions 47 and 48, respectively. When the spool 44 is dropped into

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the cup, over the member 34, the lower edge of the spool may rest on the upper edge of the detector 31, but the slight rotation of the member 34 in the normal ribbon feeding operation as will be later explained, will bring the detector into register with one of the slots 46. This action will allow the spool to drop so that the end of the detector 31 will be in a slot 46 in position to rotate the spool, as the tube 26 is being driven. The seating of the spools in proper place will occur when the detector in either spool holder starts to rotate when the typewriter is operated.

The form of the spools is such that a minimum amount of attention need be given by the operator when replacing a ribbon unit and in the latter operation the fingers of the typist are protected from soiling and the ribbon is protected against twisting or curling so that it can be quickly applied to the vibrator shown in Figs. 3, 4 and 8 in a minimum of time. In order to accomplish this, the ribbon of each unit is provided with a combination guide and guard means 13, which is shown in one form as in Figs. 5 and 6 and is shaped, preferably from a blank 49 of transparent plastic material, to provide an inner section 51, an outer section 52, a loop section 53 and a tab section 54 all relatively foldable on suitable score lines 56 to form a ribbon encompassing guide shaped to provide a loop 57 at one end, a pair of tabs 58 at the opposite end and an intermediate sleeve 59 having a strengthening overlap 61 along one edge thereof.

The guard is flexible and self-shaping after it is finished and can be applied to the ribbon or removed therefrom with ease. When the guards are on the ribbon, the tabs 58 are disposed between the edges of the ribbon 11 and the flanges 16 and 17 of the spools, as evident in Fig. 9, and thus anchor the guard or guide means to the spool so that when the spools are pulled apart from the Fig. 1 to the Fig. 2 position, the ribbon is supported in the space between the loops 57, which are now separated just the right distance to be slipped over the posts 62, after the movable arms 63 are opened to let the ribbon be positioned in the vibrator 64 without the necessity of the operator touching the ribbon with her fingers.

The guards support the ribbon by being in turn supported at their inner ends between the flanges of the spool so that the ribbon will not sag or rub against any of the parts of the machine. While separate right and left hand guards are shown, it is evident that a guard, by being reversed in position, can furnish the left hand guard of a pair.

In the form of guard 65, shown in Figs. 7 and 8, the blank is folded to provide inner and outer sleeve or tube forming sections 66 and 67 respectively, each inner section terminating in a loop 68 through the medium of which the guard can be mounted in the vibrator 64. It is to be understood that the term guard is meant to include "guide," as the guard 65 is reinforced along one edge by the overlap 69 of the material, and when grasped between the fingers, can be bent arcuately in its loop portion as shown in Fig. 8, to tauten the ribbon in its exposed portion 71 so that it can be easily placed behind the opened movable arms 63 of the vibrator and so that the loop 68 notched as at 72 can, by the latter, be seated on the shoulders 73 of the vibrator to accurately position the ribbon in the printing zone. The notches 72 also prevent any longitudinal movement of the guard as the ribbon is fed therethrough during typing operations.

The guard may be applied to the ribbon arranged in package form as shown in Figs. 1 and 2 and being pliable will conform to the curvature of the wound ribbon when the spools are arranged in package relation. The form of the vibrator illustrated herein is fully disclosed in Patent No. 2,509,862 granted May 30, 1950 to E. H. Dreher.

While I have described what I consider to be a highly desirable embodiment of my invention, it is obvious that

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many changes in form could be made without departing from the spirit of the invention and I therefore do not limit myself to the exact form herein shown and described, nor to anything less than the whole of my invention as hereinbefore set forth, and as hereinafter claimed.

What I claim is:

1. A ribbon unit, for replacing the worn inking ribbon of a writing machine including ribbon spool holding means and ribbon vibrating means, comprising twin spools adapted to be placed in said spool holding means, each spool carrying a portion of the ribbon, guide means on that portion of the ribbon passing between said spools constituting elongated sleeve means detachably encompassing portions of the ribbon flanking said vibrating means for keeping the fingers from being soiled, and loop means on said sleeve means for detachably mounting the ribbon on said vibrating means.

2. A ribbon unit, for replacing the worn inking ribbon of a writing machine including ribbon spool holding means and vibrating means, comprising twin spools adapted to be placed in said spool holding means, each spool carrying a portion of the ribbon, elongated tubular guide means detachably mounted on that portion of the ribbon flanking said vibrator and passing between said spools and constituting a guard for keeping the fingers from being soiled, and loop means on said guide means for detachably mounting the ribbon on said vibrating means.

3. A ribbon unit, for replacing the worn inking ribbon of a writing machine including ribbon spool holding means and ribbon vibrating means, comprising twin spools adapted to be placed in said spool holding means, each spool carrying a portion of the ribbon, guide means on that portion of the ribbon passing between said spools constituting a guard for keeping the fingers from being soiled, said guide means being shaped to provide elongated sleeve means through which the ribbon slides, and loop means at the ends of said sleeves for detachably mounting the ribbon on said vibrating means.

4. A ribbon unit for replacing the worn inking ribbon of a writing machine including ribbon spool holding means and ribbon vibrating means, comprising juxtaposed twin spools adapted to be manually spaced for positioning in said spool holding means, each spool carrying substantially half of the ribbon, elongated tubular guide means on that portion of the ribbon passing between said spools constituting a guard for keeping the fingers from being soiled by the ribbon, loop means on said guide means for detachably mounting the ribbon on said vibrating means, and reinforcing means extending along one edge of said guide means.

5. A ribbon unit for replacing the worn inking ribbon of a writing machine including ribbon spool holding means and ribbon vibrating means, comprising juxtaposed twin flanged spools adapted to be manually spaced for positioning in said spool holding means, each spool carrying substantially half of the ribbon, guide means on that portion of the ribbon passing between said spools constituting a guard for keeping the fingers from being soiled by the ribbon, means on said guide means for detachably mounting the ribbon on said vibrating means, and laterally extending tab means on said guide means fitting between the edges of the wound portion of the ribbon and the flanges of the spool.

6. A ribbon unit for replacing the worn inking ribbon of a writing machine including ribbon spool holding means and ribbon vibrating means, comprising twin spools adapted to be placed in said spool holding means, each spool carrying a portion of the ribbon, guide means on that portion of the ribbon passing between said spools constituting a guard for keeping the fingers from being soiled, said guide means being shaped to provide sleeve means through which the ribbon slides, and loop means having notches therein for seating engagement with the

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vibrating means for anchoring said guide means against longitudinal movement with respect to said vibrating means.

7. A ribbon unit for replacing the worn inking ribbon of a writing machine including ribbon spool holding means and ribbon vibrating means, comprising twin spools adapted to be placed in said spool holding means, each spool carrying a portion of the ribbon, guide means on that portion of the ribbon passing between said spools constituting a guard for keeping the fingers from being soiled, a loop in said guide means for mounting the latter in said vibrating means and said loop being adapted to be flexed to form a bow by the manual manipulation of said guide means for facilitating the mounting of the guide means and the ribbon in said vibrator.

8. A combination guard and guide, for the inking ribbon of a business machine, formed from a blank shaped to provide integral inner and outer tube forming sections, the outer section being extended and folded along one edge to overlap the free edge of said inner section to complete a tube and reinforce the same, a loop forming end on one of said sections for securing the guard to a vibrator, and tab members on one of said sections for mounting an end of the guard between the flanges of a ribbon spool.

9. A combination guard and guide, for the inking ribbon of a business machine, formed from a blank shaped to provide integral inner and outer tube forming sections, the outer section being extended and folded

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along one edge to overlap the free edge of said inner section to complete a tube, and a loop formed in one of said sections for securing the guard to a vibrator.

10. A combination guard and guide for the inking ribbon of a business machine, formed from a blank shaped to provide integral inner and outer tube forming sections, one section along one edge being extended and folded to overlap the free edge of the other section to complete a tube and reinforce the same and a loop formed in one of said sections for securing the guard to a vibrator.

11. A combination guard and guide for the inking ribbon of a business machine, formed from a blank shaped to provide tube sections, the material of each section along one edge being extended and folded to overlap the free edge of the other section to complete a tube and reinforce the same and a loop connecting said sections for securing the guard to a vibrator.

References Cited in the file of this patent

UNITED STATES PATENTS

1,690,487	Horton	Nov. 6, 1928
1,839,873	Going	Jan. 5, 1932
2,329,129	Mehan	Sept. 7, 1943
2,386,439	Cordis	Oct. 9, 1945
2,742,132	Anderson	Apr. 17, 1956
2,788,111	Spiegel	Apr. 9, 1957
2,873,015	Gray	Feb. 10, 1959

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,930,469

March 29, 1960

Edwin O. Roggenstein

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, line 1, and in the heading to the printed specification, line 3, for "Edwin O. Röggenstein", each occurrence, read -- Edwin O. Roggenstein --; in the heading to the two sheets of drawings containing figures 1 to 14, line 1, for "E. O. Röggenstein", each occurrence, read -- E. O. Roggenstein --.

Signed and sealed this 31st day of January 1961.

(SEAL)

Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents