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T. S. ROSS ET AL
TYPEWRITER RIBBON PACKAGE

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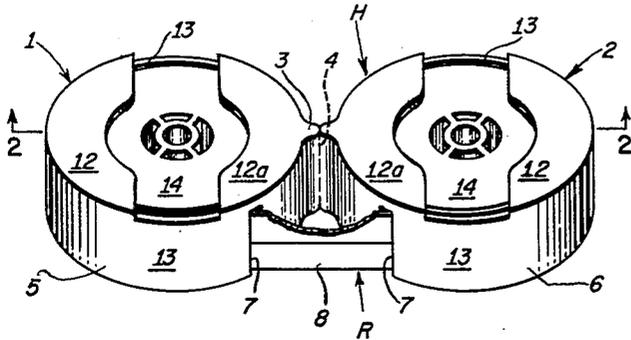


Fig. 1

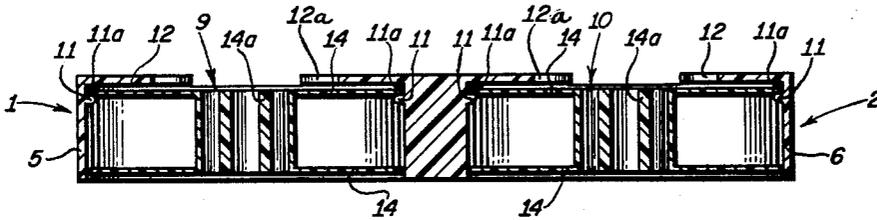


Fig. 2

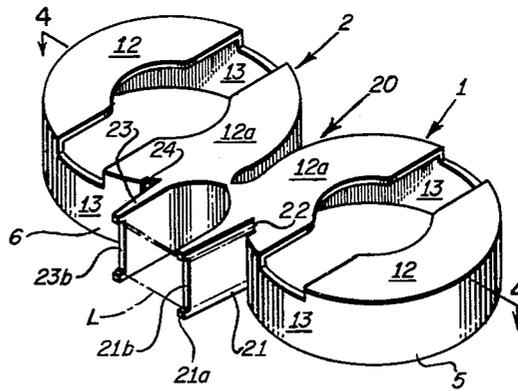


Fig. 3

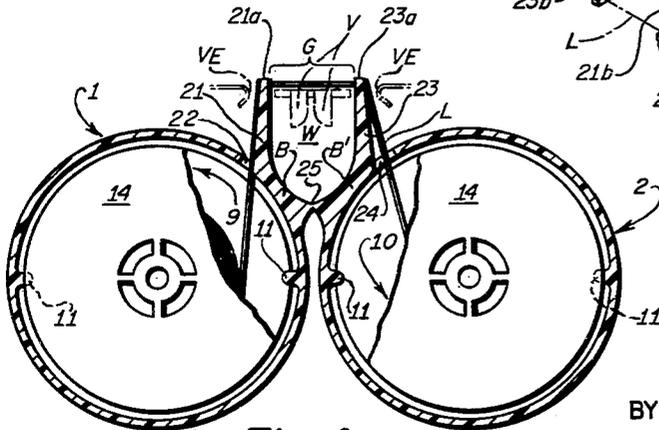


Fig. 4

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TYPEWRITER RIBBON PACKAGE

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This invention relates to an improved typewriter ribbon package of the nature shown in U.S. Patents to Lambert 2,825,450, Holden 2,999,578 and Landgraf 3,008,561.

These prior ribbon packages have the common and desirable characteristic of enabling the operator to install the ribbon in and remove it from a typewriter without the necessity of the fingers touching and becoming inked by the ribbon. They are also, however, characterized by certain disadvantages that lend a certain degree of inconvenience to their use. For example, in certain of these packages the ribbon spools are permanently housed in containers which become a part of the machine when disposed in the machine's ribbon cups. When in this position the spools are engaged by the spool drive shafts. It occasionally occurs that these shafts are improperly or loosely mounted in the machine as to cause binding between the spool flange or flanges and the wall of its housing. This in turn results in premature operation of the ribbon reversing mechanism.

In another form of package, the spools are loosely mounted in open-ended containers wherein they are retained by finger pressure on the container walls. Release of this pressure permits the spools to drop from their containers into the ribbon cups on the typewriter. Premature or accidental release of this pressure permits the spool or spools to fall on the floor or elsewhere with consequent unwinding of the ribbon from the spools.

It is accordingly among the objects of this invention to provide a typewriter ribbon package that overcomes the above mentioned disadvantages as well as others in a thoroughly practical and efficient manner. Other objects will be in part apparent and in part pointed out hereinafter.

In the drawing wherein there are shown two embodiments of the invention and wherein similar reference characters refer to similar parts:

FIGURE 1 is a perspective view of the ribbon spool holder with ribbon spools and ribbon disposed therein;

FIGURE 2 is a vertical section taken along the line 2—2 of FIGURE 1 showing the spools retained in place in their holder;

FIGURE 3 is a perspective view of another embodiment of a ribbon spool holder; and

FIGURE 4 is a horizontal section taken along the line 4—4 of FIGURE 3 showing the spools retained in their holder.

Referring first to FIGURE 1, the ribbon package includes a holder, generally indicated at H, comprising a pair of open shells 1 and 2 that are preferably molded of thin, transparent, but flexible, brittle plastic material such as polystyrene. The holder is initially molded as an integral structure, the shells 1 and 2 being joined or connected by a bridge 3 provided with a weakened zone 4 where the bridge can be broken and the shells separated as will be described.

Shells 1 and 2 are respectively provided with annular skirts 5 and 6 slotted as at 7 respectively, these slots lying in a plane between a plane passing through the axes of shells 1 and 2 and one tangent to shells 1 and 2. These slots are adapted to receive a stretch 8 of an inked ribbon R, wound on a pair of spools 9 and 10, when the spools are disposed respectively in shells 5 and 6 thus to permit the ribbon to wind and unwind on and off the spools during operation of the typewriter. As shown in FIGURE 2,

each of spools 9 and 10 includes a pair of spaced flanges 14 coaxial and integral with a core 14a, the axial depth of each spool being less than that of its shell so that the spools may be completely housed within their respective shells.

Each of annular skirts 5 and 6 of shells 1 and 2 is provided with a pair of preferably diametrically opposed detents 11 which are spaced below a pair of spaced top flanges 12 and 12a on the shells thus forming spaces 11a for the reception and retention of upper spool flanges 14 when the spools are installed in their respective shells. These detents lie in a plane passing through the axes of spools 1 and 2 and normal to planes passing between adjacent pairs of top flanges 12 and 12a respectively.

Installation of the spools is effected by pressing or flexing skirt portions 13 inwardly causing sufficient spreading of detents 11 to permit passage of upper spool flange 14 thereby into spaces 11a. Upon release of pressure the detents return to their original positions where they underlie the top spool flange 14 thus holding the spool in its shell.

It will now appear that when it is desired to install spools 9 and 10 in a typewriter, the operator breaks bridge 3 along zone 4 to enable separation of the spools and create a sufficiently long stretch 8 of the ribbon to form a loop (not shown) therein which may be dropped over the vibrator arms, such as arms V (FIGURE 4) of the typewriter. Thereafter the spools may be dropped on their respective drive spindles (not shown) by pressing skirt sections 13 inwardly to spread detents 11 from their flange holding position and thus release the spools. Holder 11 may be then be discarded or reloaded as desired.

In FIGURES 3 and 4, wherein there is shown another embodiment of the invention, the package includes a holder generally indicated at 20, which in most respects is identical to holder H (FIGURE 1). Thus holder 20 includes shells 1 and 2 with skirts 5 and 6, for spools 9 and 10 having flanges 14 which are releasably held within the spools by detents 11 as described. The shells 1 and 2 of holder 20 similarly have top flanges 12 and 12a and skirt portions 13, the latter being flexible as described above to permit spool installation in and removal from the shells.

In prior ribbon packages such as, for example, those disclosed in the U.S. patents referred to above, it is necessary, after separation of the spool containers, to create a stretch of ribbon therebetween of sufficient length that a loop may be formed for draping around the typewriter's vibrator arms. Not infrequently this draping operation is difficult to effect because the ribbon is so limp that its loop droops to such an extent that it is difficult to thread the sides of the loop through the eyes of the vibrator and around the vibrator arms without manually touching the ribbon.

This difficulty is overcome through the provision in the FIGURE 3 form of package of means capable of forming a ribbon loop all portions of which are in a taut condition when the loop is placed in the vibrator. Thus shell 1 (FIGURE 4) has integrally molded therewith a wall or projection 21 that extends outwardly from shell skirt 5, in a general plane normal to a plane passing through the axes of shells 1 and 2, the outer edge 21a of this wall lying well outside of shell 1 and being provided with a ribbon retaining notch 21b. A ribbon slot 22 similar to slot 7 (FIGURE 2) is provided in skirt 5 adjacent one side of the base of wall 21, a bridge element B integral with skirt 5 projecting therefrom near the other side of the wall base.

Shell 2 is identically provided with a wall 23, edge 23a, notch 23b, slot 24 and bridge element B'. When holder 20 is molded, bridge elements B and B' are integral along

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a weakened zone 25 and thus constitute a bridge that can easily be broken when it is desired to separate shells 1 and 2.

It will now appear that walls 21 and 23 and bridge elements B and B' form a recess or well W of substantial depth, the outer edges 21a and 23a defining a gap G lying in a plane that is parallel to the plane passing through the axis of the shells 1 and 2 and that lies well outside of a plane lying between the aforesaid planes and tangent to shell skirts 5 and 6. Thus gap G lies well outside of the shells.

When holder 20 is initially loaded it may first be turned upside down to provide easy access to the inside of shells 1 and 2. In this position, spools 14 are inserted in shells 1 and 2 and therein retained by detents 11 as described above. The stretch of ribbon between the spools is threaded into slots 22 and 24 and trained around wall ends 21a and 23a so as to lie in notches 21b and 23b thus spanning gap G and effectively forming a loop L in the ribbon between and outside of shells 1 and 2. With the spools and ribbon so installed, the spools may be so relatively rotated in their shells as to tauten all portions of the ribbon stretch that form the loop as will effectively prevent the loop from sagging when it is inserted in the vibrator.

With the taut loop so formed the holder 20 may be moved until the bottom of the loop lies over and behind vibrator arms V. Next the holder may be lowered to deposit the loop bottom behind the vibrator arms and the loop sides in the vibrator eyes VE respectively, the ends of walls 21 and 23 projecting through the vibrator eyes and well W accommodating vibrator arms V. With the ribbon loop so placed, shells 1 and 2 are separated by breaking the bridge along zone 25 whereupon the ribbon spools may be installed on their respective drive shafts in the manner described above.

Accordingly it may be seen that we have provided a typewriter ribbon package that attains the several objects set forth hereinabove in a thoroughly practical and economic manner.

As many other embodiments of the invention may be made and as many changes in those above disclosed are possible, it will be understood that the foregoing is to be interpreted in an illustrative rather than limiting sense, the scope of the invention being defined in the appended claims.

We claim:

1. In a device of the nature described, in combination, a ribbon spool holder molded from slightly flexible brittle plastic material comprising a pair of bottomless shells having annular skirts, means detachably securing said shells together with their axes parallel, opposed spaced top flanges integral with each of said skirts, and a pair of detents integrally and interially formed on each of said skirts in diametric opposition respectively below and spaced from the top flanges thereof, thereby to form a pair of spool flange receiving recesses, whereby a spool disposed in one

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of said shells with its top flange retaining said recess by an associated pair of said detents may be released therefrom by application of pressure on the spool skirt to spread said associated detents to a point where they no longer can retain said spool flange.

2. A device in accordance with claim 1 wherein said skirts are provided with ribbon receiving slots which lie in a plane parallel to and disposed between a plane passing through the axes of said shells and a plane tangent to said skirts.

3. A device in accordance with claim 2 wherein said plane passing through said axes also passes through said detents and is normal to planes passing between opposed pairs of top flanges.

4. A device in accordance with claim 2 wherein a pair of walls are integrally formed respectively on said skirts adjacent said slots and extending outwardly therefrom, the outer edges of said walls defining a gap adapted to be spanned by a stretch of ribbon.

5. A device in accordance with claim 1 wherein means connected to and extending from said skirts are provided to define a gap lying exteriorly of said shells and adapted to be spanned by a stretch of ribbon thereby to form a loop in said stretch of ribbon.

6. A device in accordance with claim 1 wherein said means comprises a thin frangible bridge portion having a weakened zone formed therein.

7. In a typewriter ribbon package, in combination, a ribbon spool holder adapted to releasably retain a pair of ribbon spools and comprising a pair of spool cups separably connected by an integral bridge having a weakened portion, said holder being molded from slightly flexible brittle plastic material whereby said cups may be separated by flexing said bridge to fracture it at said weakened portion, said cups being opened at the bottoms thereof and each including a skirt,

and a pair of detents integrally and interiorly formed on each of said skirts in diametric opposition in a plane passing through the axes of said cups thereby to form a pair of spool flange receiving recesses, whereby a spool disposed in one of said cups with its top flange retained in the related recess by an associated pair of said detents may be released therefrom by application of pressure on the spool skirt in a direction normal to said plane to flex said skirt and separate said last mentioned detents to a point where they no longer can retain said spool flange.

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