Sept. 12, 1961 M. P. HOLDEN 2,999,578

RIBBON CHANGE PACKAGE

Filed Sept. 30, 1959 2 Sheets-Sheet 1

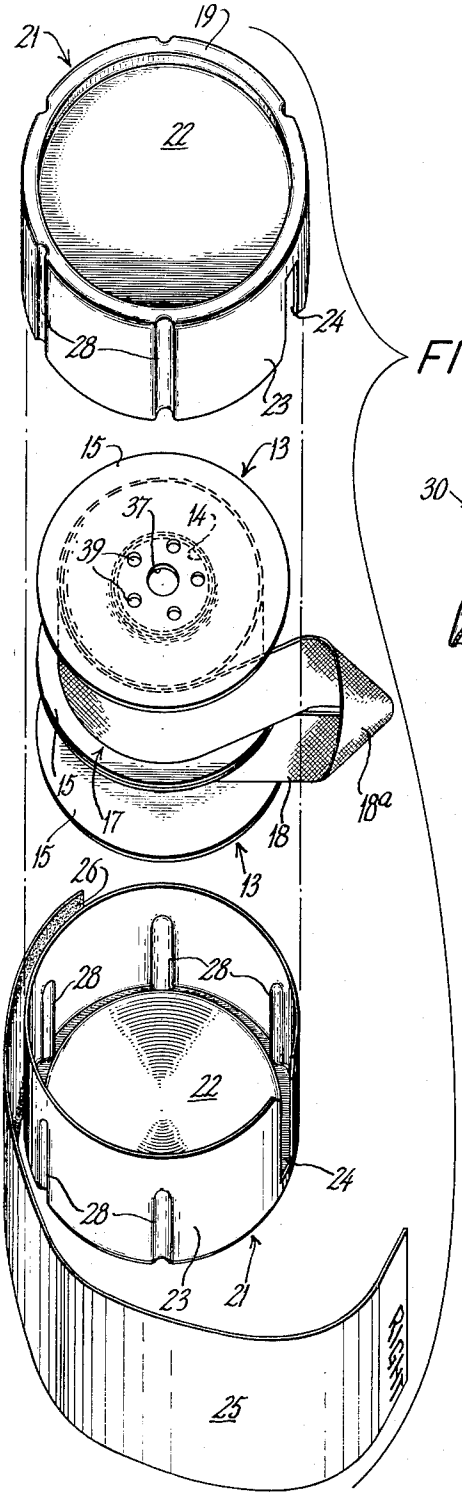


FIG. 1

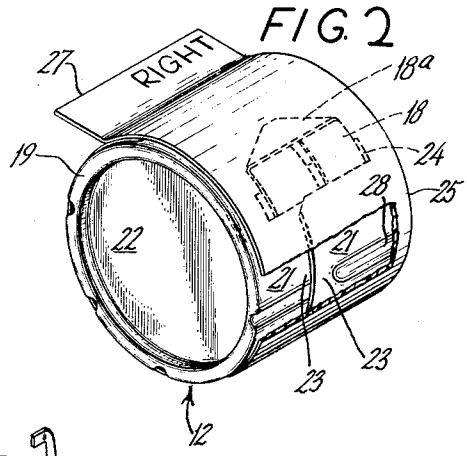


FIG. 2

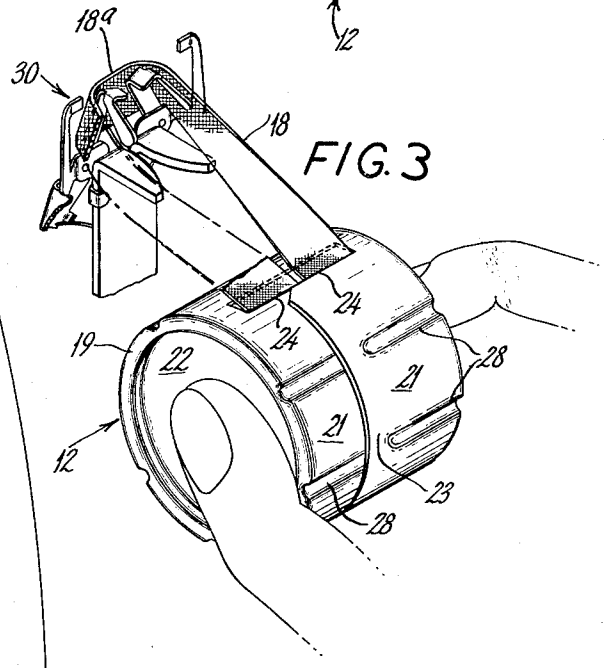


FIG. 3

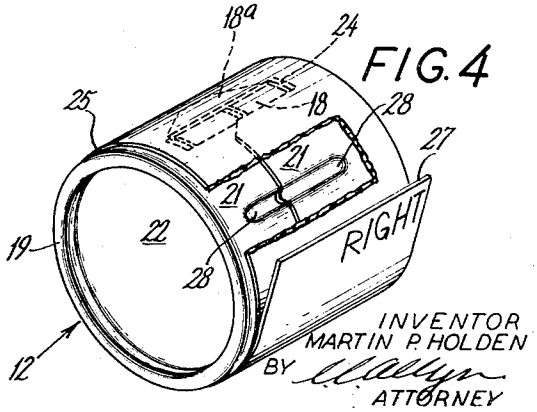


FIG. 4

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FIG. 5

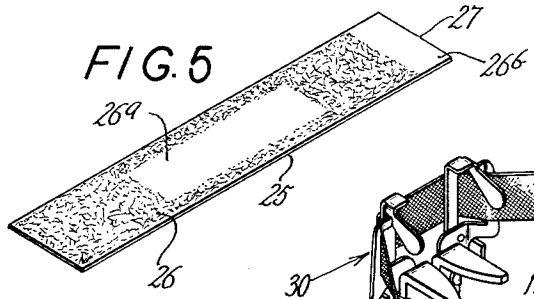


FIG. 6

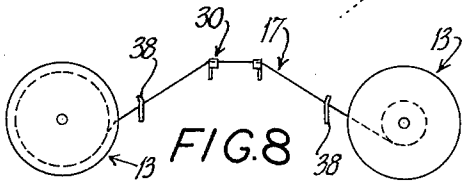


FIG. 8

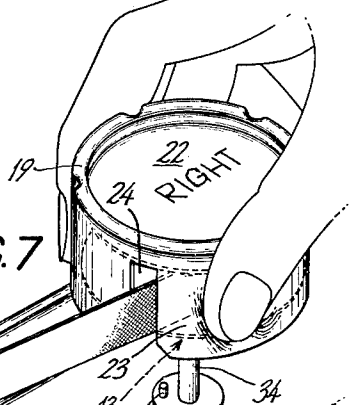
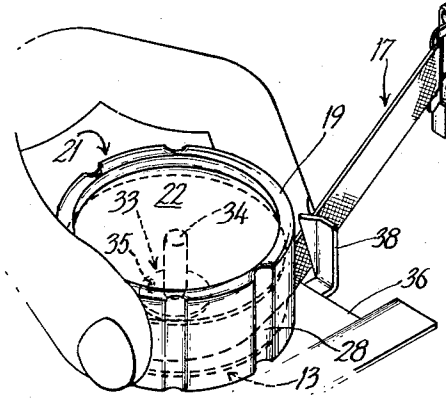


FIG. 7



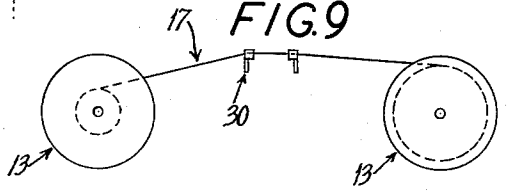


FIG. 9

United States Patent Office 2,999,578 Patented Sept. 12, 1961

2,999,578

RIBBON CHANGE PACKAGE

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Filed Sept. 30, 1959, Ser. No. 843,417
9 Claims. (Cl. 197—151)

This invention relates broadly to package means for spooled, pigmented ribbon and particularly to the kind of package means which facilitates the installation of ribbon without necessitating finger contact with pigment from the ribbon.

It is generally old to provide package means which serve as a medium to effect the installation of spooled ribbon into a typewriter without necessity of finger contact with pigment from the ribbon. However, such prior package means are of a nature so that installation in the machine is necessitated along with the ribbon and further so that the machine must be made compatible with the package means to receive it. These known ribbon package means usually contain spooled ribbon permanently encased therein for installation in the machine to become a part thereof until such time as the ribbon is worn out and needs to be replaced again. The package means so becoming part of the machine usually imposes an extra drag on the feeding mechanism for the spools. Moreover, due to the requirement of becoming a part of the machine structure, such prior package means have needed to be of rather stable and costly construction.

Broadly, the package means of the present invention comprises a cap or cover wherein a ribbon spool normally reposes loosely and which is capable of deformation at a person's will by finger pressure applied thereto, to hold the spool within it and thereby to facilitate the separation of the cap along with the spool therein from another package component and the subsequent deposit of the spool by the cap in position on the machine. The said cap is finally removed from the so deposited spool by a partial relaxation of the finger pressure thereon, allowing then the withdrawal of the cap from the so installed spool.

The package means of the invention in effect constitutes a temporary glove or tool to effect the placement of spooled ribbon into position on a machine without entailing pigment transfer to the handling fingers.

According to the preferred embodiment of the invention herein specifically disclosed, two ribbon spools have a pigmented ribbon wound partially upon each and extending therebetween, and such spools are packaged in axial adjacency in a two-part container which preferably consists of two similar caps of thin flexibly distortable material, the crowns of the two caps heading the adjacent spools oppositely and rims of the caps telescoping one into the other to complete the package. The said caps have preferably aligned slits in their said rims for the ribbon to extend from the two spools outside of the two caps and to include thereat an external loop. While the caps are still joined, this external loop is conveniently adapted to be placed in the ribbon vibrator of a typewriter or guiding means in other machines or devices. The package or assembly comprising the two caps is adapted to be grasped, one hand applied to each cap, in a manner so that each ribbon spool becomes held within one cap. While each spool is so held within its respective cap, the caps are separable from each other along with the spools and then the caps are adapted to be further manipulated as required to place the spools in their respective required positions on the appropriate machinery. Finally, the withdrawal of the caps off the installed spools is facilitated by a partial relaxation of finger pressure which releases the spools.

It is therefore a major object of the invention to provide an improved and economical ribbon spool supply package which facilitates the installation of spooled ribbon in a typewriter or other printing machinery in an efficient manner and without necessity of finger smudging contact with pigment from the ribbon.

It is another object of the invention to provide an efficient, low-cost ribbon package which lends itself for loading pigmented, spooled ribbon efficiently into machines without necessitating finger contact with ribbon pigment and without the package or any part thereof being required to remain in the machine.

It is a still further object of the invention to provide a two-spool ribbon package in a most economical form facilitating the installation of the ribbon spools into a machine in a simple manner without necessitating finger contact with ribbon pigment and without the package being required to become a part of the machine to which the ribbon is applied.

Other objects and features of the invention will become evident as a preferred embodiment of the invention is described hereinafter.

Referring now to the drawings:

FIGURE 1 is a perspective view showing the ribbon spool supply package of the invention in exploded aspect;

FIGURE 2 is a perspective view of said supply package fully assembled in the form it will be sold;

FIGURE 3 is a left-hand front perspective view illustrating how the supply package of the invention may be handled to drop a ribbon loop thereof into position on a ribbon vibrator of a typewriter;

FIGURE 4 is a perspective view similar to FIGURE 2 but showing a supply package of a slightly modified form;

FIGURE 5 is a perspective view of a sealing strip for the supply package;

FIGURE 6 is a left-hand front perspective view depicting the ribbon of a supply package in position on a ribbon vibrator and the package itself divorced into two spool-handling portions and in the process of being maneuvered to install the spools into a typewriter;

FIGURE 7 is a perspective view similar to FIGURE 6 and shows one ribbon spool handling portion of the supply package placed on a left driving spindle and the other ribbon spool handling portion in the process of being placed equivalently on a right driving spindle.

FIGURE 8 is a schematic plan view showing the disposition of two ribbon spools relative to a ribbon vibrator in an Underwood standard typewriter and showing also the course required for the installed ribbon; and finally,

FIGURE 9 is a schematic plan view similar to FIGURE 8, depicting the spools and the particular course for the ribbon in an Underwood all-electric typewriter.

According to the preferred embodiment of the invention illustrated in the drawings, a ribbon spool supply package generally designated **12** comprises two ribbon spools **13**, see FIGURE 1, of conventional structure contained therein substantially in axial adjacency. Said spools **13** comprise each a core **14** unitary with two end flanges **15**. A ribbon **17** is partially wound upon each spool **13** between its two flanges **15** and extends from one to the other spool in an external stretch **18** which includes a loop **18***a*. Said supply package **12** comprises two caps **21** having each a crown **22** and a generally cylindrical rim **23**, said spools **13** being sandwiched between said crowns **22** of said caps and each cap rim **23** extending toward the crown of the other cap. The said rims **23** interfit in a telescopic relationship and are preferably manufactured of thin transparent plastic sheet material by a material-drawing or forming process. Each of the cap rims **23** has an open slot **24** whereout the ribbon from the two ribbon spools **13** extends and in-

cludes the aforementioned external ribbon stretch **18** which includes the loop **18***a*.

The described components of the ribbon spool package **12** are shown in an exploded aspect in FIGURE 1 and the package may include an outer wrapping strip of paper or other sheet material indicated at **25**. This paper strip **25**, see FIGURE 2, is part of the supply package **12** offered for sale, it having the function of binding the caps **21** together and also providing a moisture-sealing juncture between the caps. Specifically, said strip of paper **25** has applied thereon over a discrete area **26**, see FIGURE 5, adhesive of a pressure sensitive kind, serving to bond the two caps **21** into a moisture sealed spool package containing the full ribbon **17** inclusive of the stretch **18** and loop **18***a*. An area **26***a* of said strip **25** which is to overlie the ribbon stretch exterior of said rims **23** is devoid of adhesive. The entire strip may have a covering of adhesive and the area **26***a* may have a shield of plain paper applied thereto, in effect producing the desirable non-adhesive area **26***a*. Said wrapping strip **25** may also be devoid of adhesive at a terminal area **26***b* to afford a loose ear or tab **27** by which it can be grasped readily to unwrap it from the caps. Instead, the area **26***b* may be covered with adhesive and covered with a blanking shield.

The crowns **22** are preferably recessed axially into the rims **23** forming an end bead **19** on the latter. In this manner the cap rims **23** at the cap crowns becomes extended appreciably beyond the spool flanges thereat, so that the strip **25** may have adhesive thereon along liberal marginal portions adjoining the ribbon stretch which includes the loop **18***a*. The recessing of the crowns **22** lends also a desired degree of rigidity to the caps **21**.

A number of corresponding stiffening ribs **28** formed into the two cap rims **23** are in matching sliding fit in the telescoping direction of the caps and aid in assembling the caps so that the open slots **24** of the two caps are and stay in alignment. It will be noted particularly from FIGURES 1, 2 and 3 that the cap **21** which fits upon the other cap **21** has its ribs **28** terminating short of the open end of its rim. This facilitates the introduction of one cap into the other with greater convenience.

Except in FIGURE 4, the cap ribs **28**, where shown, reach to the full extremity of the rims **23** at the crown ends. This is preferable for simplicity of structure of the manufacturing dies for the caps. However, the caps so made impair very slightly the perfection of the moisture seal obtainable by the wrapping strip **25**.

Perfect moisture sealing effect is obtainable by a modified structure shown in FIGURE 4, wherein the ribs **28** do not fully reach to the crown ends of the caps, so that at both the crown ends there exist continuous and smooth circumferential surfaces for perfect sealing contact by the wrapper strip **25**. A perfect moisture seal is probably only required to satisfy extremely unfavorable conditions.

The assembly of the spool package **12** involves very simple operations. The two spools **13** may be placed first on even-level in a given specified relation upon fixture pins, not shown. Then the assembler may reach with each hand for one spool cap, placing one cap over each spool, care being taken so that the ribbon stretch between the two spools will be received in the open cap slots **24**. Increasing now the grasping pressure on the individual caps **21** to deform them to grip the spools **13** within the caps, the caps with the spools so held therein are now lifted off the fixture pins and are brought together into the required axially interfitting relation. This places the spools **15** sandwiched between the two cap crowns **21**. The ribbon stretch **18** exterior of the caps is then arranged to lie circumferentially on the cap rims **23** in two parallel bands as indicated in FIGURE 2 with the loop **18***a* therebetween being folded down as shown. The wrapper strip **25** is then applied to complete the package.

Obviously the wrapper strip **25** may have miscellaneous data printed thereon including instructions for installing, size, kind and color of ribbon, and notations of products to which the packed spool is applicable.

The wrapper strip may have a designation "Right" thereon, preferably on the tab **27**, on that side of the package which contains the spool **13** which belongs on the right side of the machine. Instead, or additionally, the cap **21** containing this particular spool may have the same designation on its crown **22**, see FIGURE 7. The purpose of such designations will become evident in connection with the spool installing procedure.

Since the spools **13** are contained in caps **21** which have a telescopic association, it follows that the same caps will accommodate various width spools suitable for use with different machines and devices. Obviously the diameter of the spools must be suited to the product on which they are to be used and relatedly the caps must be of suitable inside diameter in accord with this disclosure.

In an Underwood standard typewriter, as depicted schematically in FIGURE 8, the spools require installation so that the ribbon extends from each front side of the spool toward the ribbon vibrator **30**. The spool package shown in the drawing has its spools **13** contained therein for ready and correct application to such standard Underwood typewriter or machines of similar ribbon installation requirement. By way of example the spool installing procedure in connection with an Underwood standard typewriter will now be explained.

Spool installing procedure

The appropriately identified ribbon package is picked up betwen the fingers of one hand so that the tab **27** of the wrapper strip **25** extends rearwardly as in FIGURE 2 and so that the designation "Right" on the tab is to the right. By use of the other hand the wrapper strip **25** is then drawn off the package to expose the stretch of ribbon loop **18** and to ready the caps **21** for later separation from each other. Holding now the caps **21** together between the fingers of one hand, the ribbon loop **18***a* may first be extended somewhat by the aid of a pencil and then maneuvered to drop the ribbon into position on the vibrator structure **30**. Such vibrator structure may be of a modern, openable kind shown, which when opened is adapted to freely receive the ribbon therein. Whether the vibrator structure be of such openable kind or not, a pencil may be used as an aid in this operation, wherefore all contact by the operator with the pigmented ribbon is avoided. If the ribbon vibrator is of the openable kind shown, it is then closed.

Now referring to FIGURE 6 there are indicated two ribbon spool driving elements **33** of a typewriter, each including an upreaching spindle end **34** and a flange-carried pin **35** for driving the spool. One such driving element **33** is shown at each side of the ribbon vibrator **30**, forwardly thereof, and each is shown to protrude from a shelf **36** provided in the typewriter. The particular spools **13** shown by way of example have each a central perforation **37** by which they are adapted to be received upon the spindle ends **34** and furthermore have a circular array of perforations **39** with any of which the driving pins **35** may become associated.

After the ribbon is properly in place on the vibrator **30** and the latter has been closed, the operator grasps each cap **21** in one hand, applying sufficient finger pressure to the rims **23** thereof to deform them and cause them to hold the spools **13** within the caps. The caps being so grasped are now separated from each other and swung outwardly as indicated in FIGURE 6, each spool **13** in this manner being brought into vertical alignment with its appropriate driving element **33**. Furthermore, the caps **21** are each rotated to bring the ribbon extending thereout from the slots **24** into proper installing relation with usual ribbon guides **38** on the typewriter.

In FIGURE 7, the spool **13** at the right, held by means of its cap **21**, is ready to be lowered into position on the driving element **33** therebelow, while the spool at the left has already been lowered by means of its cap **21**. After both spools **13** are appropriately on the spool driving element **33**, the pressure on the caps **21** is relieved sufficiently to effect the withdrawal of the caps freely off the installed spools. The typewriter is now ready for use.

General description continued

It will be noted that in FIGURE 9 the ribbon **17** therein extends to the ribbon vibrator **30** from each rear side of the spools therein, whereas in FIGURE 8 it extends from each front side. The FIGURE 9 showing is the required condition in the newest all-electric Underwood typewriter. Ribbon supply packages for use with such a typewriter or a machine of similar requirement, are assembled slightly differently from such suitable for use with an Underwood standard typewriter. Actually such package is identical to the one illustrated in FIGURE 2, except that it contains the pair of spools in turned over relation between the caps **21**. The procedure for installing the spools of such package is substantially the same as hereinabove explained in connection with the Underwood standard typewriter, it being observed that because the spools are turned over in the package, as just explained, the ribbon will become installed appropriately as illustrated in FIGURE 9.

The ribbon packages which to this point have been described, contain ribbon of only a single color. Bichrome or multi-field ribbons are of course accommodatable in the package of the disclosure. The only additional requirement is that that color field which in the machine is to be the upper one, must be on each of the spools in the package adjacent to the cap crown **22**.

Some commercial ribbons are pigmented from one side thereof and this side must face the paper in the typewriter. Depending on conditions in the machine to which the ribbon is to be applied, the pigmented side may have to face outwardly or inwardly on the spools in the supply package.

Having explained the nature and objects of the invention, and having specifically described the invention in a preferred form, what is claimed is:

1. A ribbon supply package for a typewriting or other printing machine, comprising a ribbon spool having at least one end flange, a pigmented ribbon at least partially wound on said spool, a spool cap comprising a crown contiguous to one end of said ribbon spool and a rim in surrounding relationship to said spool dimensioned to surround the spool flange with clearance therefrom and being stable enough so that if the spool cap is lightly grasped by its rim it will retain its normal form and will allow free exit of the spool out of the cap, said supply package including a portion with which said cap is associated to provide therewith a spool enclosure, means associating said cap removably with said package portion, said spool adapted to be dropped out of the rim of the cap when the latter is removed from said package portion, and means embodied in said cap to detain said spool therein at the will of the person handling the supply package, whereby the spool is adapted to be installed in position on a machine by handling its cap and whereby said cap is thereafter removable from the spool in its installed position.

2. A ribbon supply package for a typewriting or other printing machine, comprising a ribbon spool having at least one end flange, a pigmented ribbon at least partially wound on said spool, a spool cap comprising a crown contiguous to one end of said ribbon spool and a rim in surrounding relationship to said spool, said supply package including a portion complementing said cap to provide therewith a spool enclosure, and means associating said cap removably with the said complementing portion, said cap constituted to have its rim of a flexibly distortable material dimensioned to surround the spool flange normally with some clearance and being stable enough so that if lightly grasped by its rim it will retain its normal form and will allow free exit of the spool out of the cap, said cap further constituted so that if its rim is subjected to more than light finger pressure it becomes deformed to hold the spool within the cap, whereby the said spool is adapted to be manipulated and installed in position on a machine by a grasping hold applied to its cap and whereby upon a partial relaxation of said grasping hold said cap is thereafter removable from the installed spool.

3. A ribbon supply package for a typewriting or other printing machine, comprising a pair of ribbon spools arranged in axial adjacency and having each at least one end flange, a pigmented ribbon partially wound on each spool and including a ribbon stretch extending between the two spools, and means enveloping said two spools commonly and having provision to facilitate separation into two parts which each contain one of the spools therein for exit thereof when separated, each part of said enveloping means adapted to be grasped to exert peripheral pressure against the spool to hold it from falling thereout, whereby each spool is adapted to be manipulated and installed in position on the machine by a grasping hold applied to the part of the separated enveloping means containing it and whereby each spool upon a partial relaxation of said grasping hold is adapted to be dropped out of the part of the enveloping means containing it, into position on the machine.

4. A ribbon supply package for a typewriting or other printing machine, comprising a pair of ribbon spools arranged in axial adjacency and having each at least one end flange, a pigmented ribbon partially wound on each of said spools and including a ribbon stretch extending between said spools, a pair of caps for enclosing said spools and having each a crown and a rim, said spools being sandwiched between said crowns and each cap having one spool lying within it and having its rim extending toward the crown of the other cap, and means associating said caps with each other in a separable manner, each of said caps constituted of a flexibly distortable material and being of a normal form so that upon separation from the other cap it is in such normal form free to release the spool therefrom, each of said caps further constituted so that by grasping it and subjecting it to finger pressure its rim becomes deformed to hold the spool in the cap, whereby each spool is adapted to be manipulated and installed in position on the machine by a grasping hold applied to its cap and whereby each cap upon a partial relaxation of such grasping hold is thereafter removable from the spool in its installed position.

5. A ribbon supply package for a typewriting or other printing machine, comprising a pair of ribbon spools arranged in axial adjacency and having each at least one end flange, a pigmented ribbon partially wound on each of said spools and including a looped ribbon stretch extending between said spools, a pair of caps for enclosing said spools and having each a crown and a rim, said spools being sandwiched between said crowns and each cap having one spool lying within it and having its rim extending toward the crown of the other cap, means associating said caps with each other in a separable manner, and an open slot provision in each of said rims for said looped ribbon stretch to reach outwardly of said caps from said spools, each of said caps constituted of a flexibly distortable material and being of a normal form so that upon separation from the other cap it is in such normal form free to release the spool therefrom, each of said caps further constituted so that by grasping it and subjecting it to finger pressure its rim becomes deformed to hold the spool in the cap, whereby each spool is adapted to be manipulated and installed in position on the machine by a grasping hold applied to its cap and

whereby each cap upon a partial relaxation of such grasping hold is thereafter removable from the spool in its installed position.

6. The invention set forth in claim 5, said associating means including a removable moisture sealing strip of flexible material peripherally wrapped around the two rims to cover their juncture as well as to press down and cover the stated looped ribbon stretch which reaches outwardly of said caps.

7. A ribbon supply package for a typewriting or other printing machine, comprising a pair of ribbon spools arranged in axial adjacency and having each at least one end flange, a pigmented ribbon partially wound on each of said spools and including a ribbon stretch extending between said spools, a pair of caps for enclosing said spools and having each a crown and a rim, said spools being sandwiched between said crowns and each cap having one spool lying within it and having its rim extending toward the crown of the other cap, means associating said caps with each other in a separable manner, and means embodied in each cap to detain the spool therein at the will of the person handling the package, whereby each spool is adapted to be installed in position on a machine by handling its cap and whereby each cap is thereafter removable from the spool in its installed position.

8. A ribbon supply package for a typewriting or other printing machine, comprising a pair of ribbon spools arranged in axial adjacency and having each at least one end flange, a pigmented ribbon partially wound on each of said spools and including a looped ribbon stretch extending between said spools, and a pair of caps for enclosing said spools and having each a crown and a rim, said spools being sandwiched between said crowns and each cap having one spool lying within it and having its rim extending toward the crown of the other cap, the rim of one cap fitting into the other cap in a telescopic association and furthermore so that the caps are separable from each other axially of the spools contained therein, each of said caps constituted of a flexibly distortable material and being of a normal form so that upon separation from the other it is in such normal form free to release the spool therefrom, each of said caps further constituted so that by grasping it and subjecung it to finger pressure its rim becomes deformed to hold the spool in the cap, whereby each spool is adapted to be manipulated and installed in position on the machine by a grasping hold applied to its cap and whereby each cap upon a partial relaxation of such grasping hold is thereafter removable from the spool in its installed position.

9. A ribbon supply package for a typewriting or other printing machine, comprising a pair of ribbon spools arranged in axial adjacency and having each at least one end flange, a pigmented ribbon partially wound on each of said spools and including a looped ribbon stretch extending between said spools, a pair of caps for enclosing said spools and having each a crown and a rim, said spools being sandwiched between said crowns and each cap having one spool lying within it and having its rim extending toward the crown of the other cap, the rim of one cap fitting into the other cap in a telescopic association and including means cooperative between the rims to register them against relatively turning, and an open slot provision in each of said rims for said looped ribbon stretch to reach outwardly of said caps from said spools, said open slot provisions held registered indirectly through said rim registering means, each of said caps constituted of a flexibly distortable material and being of a normal form so that upon separation from the other it is in such normal form free to release the spool therefrom, each of said caps further constituted so that by grasping it and subjecting it to finger pressure its rim becomes deformed to hold the spool in the cap, whereby each spool is adapted to be manipulated and installed in position on the machine by a grasping hold applied to its cap and whereby each cap upon a partial relaxation of such grasping hold is thereafter removable from the spool in its installed position.

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