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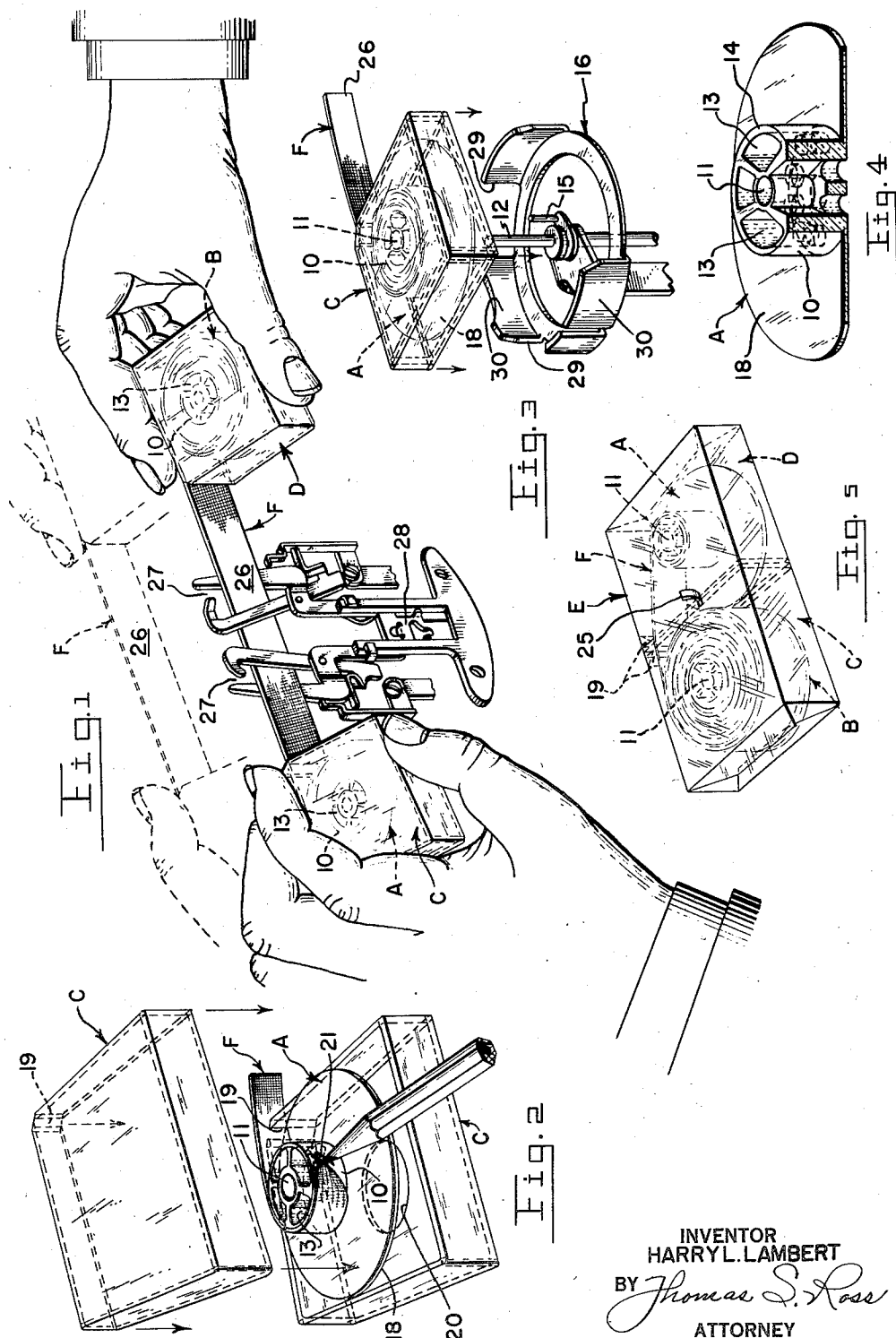
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2,873,014

SEPARABLE CARTRIDGE FOR AN INKED PRINTING RIBBON

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2 Sheets-Sheet 1



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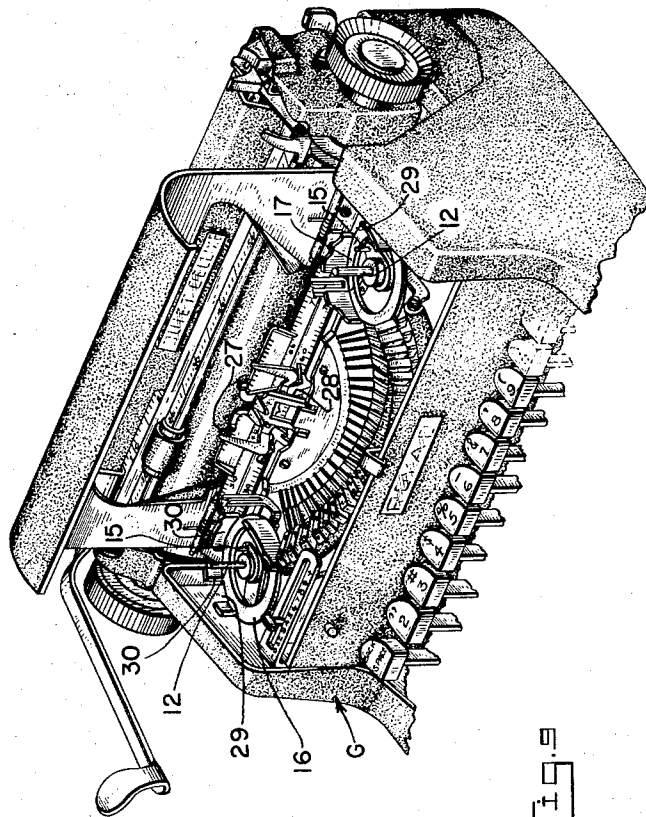
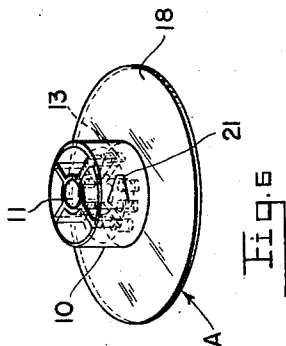
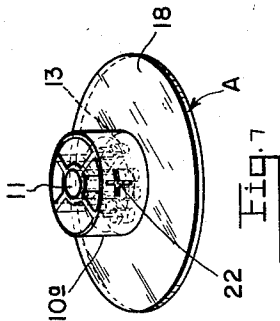
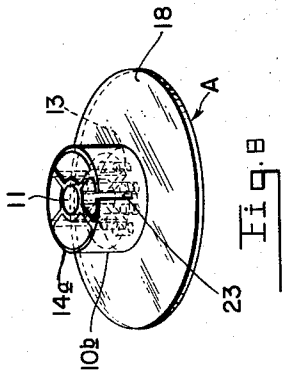
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SEPARABLE CARTRIDGE FOR AN INKED PRINTING RIBBON

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SEPARABLE CARTRIDGE FOR AN INKED PRINTING RIBBON

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9 Claims. (Cl. 197—151)

This invention relates to an improved method and means for packaging an inked printing ribbon of the kind used upon typewriters and like printing machines.

Inked printing ribbons of the class above referred to have heretofore usually been packaged by first winding the ribbon upon a flangeless core or upon a double flanged metal spool which is then wrapped in tinfoil, cellophane or other suitable covering material and placed in a tin or cardboard box. With this method of packaging inked printing ribbons, installation of the ribbon upon or its removal from a typewriter has always been a messy and undesirable task and usually results in soiled fingers for the person installing or removing such ribbons.

Numerous prior attempts have been made to prevent or eliminate the possibility of ink getting upon the fingers of the person installing or removing a typewriter ribbon by providing a leader strip or non-inked portion on the free end of the ribbon and/or providing the ribbon carrier or vibrator arm with eyes which may be opened for ribbon insertion and removal and then manually or automatically closed.

Although the provision of a ribbon carrier or vibrator arm, having eyes which may be opened and closed, helps to some extent in preventing ink from getting upon the fingers while threading the ribbon through the eyes of said vibrator arm, the person installing or removing the ribbon is still faced with the problem and necessity of attaching the conventional free end of the ribbon to the empty spool or core. In the absence of a non-inked portion or leader strip for the free end of the ribbon, it becomes necessary to handle the inked ribbon when attaching its free end to the take-up spool or core.

The principal object of the present invention, therefore, is to package a typewriter or like inked printing ribbon in a new and novel manner so that it can be quickly, conveniently and safely installed upon or removed from a typewriter or like printing machine without the necessity for the fingers of the person installing or removing such ribbon ever touching or coming into direct contact with the ink.

To this end, the present invention comprehends the provision of an improved method and means for packaging an inked printing ribbon which consists in attaching one end of the ribbon to the core of a supply spool and thereafter winding it upon said core; attaching the other or free end of the ribbon to the core of a second or take-up spool; placing the full and empty spools carrying the ribbon within a pair of closed containers with that portion of the ribbon extending between the full and empty spools passing through narrow slots or apertures formed in complementary portions of such closed containers; and in providing removable means for initially holding said closed containers in abutting relationship to form a separable cartridge.

Another feature or object of the invention resides in the provision of means for preventing rotation of the spool containers after they have been separated from one an-

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other and installed upon the drive shafts of a conventional typewriter or like printing machine.

Another object of the invention is to provide a cartridge for an inked printing ribbon which insures proper installation of the ribbon upon a printing machine such as a typewriter, adding machine, bookkeeping machine or the like.

Still another object of the invention is the provision of means for connecting the ribbon spools for rotation with the conventional ribbon drive shafts of a typewriter without the necessity of removing said spools, or the ribbon attached thereto, from the closed containers which form the ribbon cartridge.

A still further feature or object of the invention resides in the simple means by which the ends of the ribbon are attached to the spool cores.

Another important object of the present invention is to package an inked printing ribbon of the kind used upon typewriters and like printing machines in such a manner that rapid drying out of the ink is prevented, not only when the ribbon is enclosed in the cartridge before use, but also after installation and during use upon the machine.

Having regard to the foregoing and other objects and advantages which will become apparent as the description proceeds, the invention consists essentially in the novel method of packaging an inked printing ribbon and in the combination and arrangement of parts hereinafter described in detail and illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of a typewriter ribbon and a pair of spools packaged according to the present invention and illustrating the manner in which the ribbon is threaded into the eyes of a typewriter ribbon vibrator prior to placing the closed ribbon containers on the ribbon drive shafts of the typewriter.

Fig. 2 is a perspective view of one of the two containers which form the ribbon cartridge before being closed and showing one method by which the free end of the ribbon may be attached to the spool core prior to the spool being placed into its container.

Fig. 3 is a perspective view illustrating the manner in which a closed container is lowered into its associated ribbon cup on a typewriter or like printing machine.

Fig. 4 is a fragmentary isometric view of one of the ribbon spools constructed according to the present invention.

Fig. 5 is a perspective view of the separable cartridge as it will appear when the closed ribbon containers are initially held in side by side or abutting relationship.

Figs. 6, 7 and 8 are perspective views illustrating modifications of the ribbon spool cores, and,

Fig. 9 is a fragmentary perspective view of a conventional typewriter, the ribbon cups of which have been slightly altered to receive square ribbon containers.

Referring now to the drawings for a detailed explanation of the new and novel separable cartridge for an inked printing ribbon constructed according to the present invention, the separable cartridge may be considered as comprising three major components, namely, a pair of ribbon spools designated A and B (Fig. 1), a pair of closed containers C and D and means, such as the cellophane covering E, for initially holding the containers in side by side or abutting relationship as clearly shown in Fig. 5.

The pair of ribbon spools or rotatable supports A and B for the inked printing ribbon F are identical in construction and in the embodiment shown in Fig. 4, each preferably comprises a core 10 having a centrally disposed bore 11 adapted to receive either right or left hand ribbon spool drive shafts 12 (Figs. 3 and 9) of any

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conventional typewriter, the latter being generally indicated by reference character G in Fig. 9.

As shown in Fig. 4, the core 10 of each ribbon spool A and B may be provided with a plurality of transverse openings 13 which extend parallel to the bore 11, such openings forming a relatively thin circular wall section 14 around which the ribbon F is wound as shown in Fig. 2.

According to the present invention, when an inked printing ribbon F becomes worn to the extent where it must be replaced by a new ribbon, the entire ribbon cartridge, that is, the containers C and D, spools A and B and ribbon F are all discarded and replaced by a new cartridge. Thus, it is preferable that the containers for the spools and the spools or rotatable supports for the ribbons be made as economically as possible, and it has been found that low cost spools and containers are best obtained by molding them from any one of a number of conventional plastic compounds such as polystyrene or the like.

The openings 13 in the cores 10 not only serve to lighten the spools A and B and to reduce the quantity of plastic material needed in their manufacture, but also serve to receive the driving pins 15 of the ribbon drive shafts 12 so that said spools will be connected for rotation with said shafts when the containers C and D are inserted into their respective cups 16 and 17 (Figs. 3 and 9) of the typewriter in a manner presently made clear.

Each spool A and B is further provided with a single flange 18 which facilitates even winding of the ribbon F upon its cores 10, and serves to keep the cores centered within their containers regardless of whether they are full or empty.

The closed containers C and D are also preferably molded from a transparent plastic material and, as shown in Fig. 2, each container comprises two parts, one of which is slightly smaller than the other so that they may be telescoped and held together by any suitable means such as heat sealing, adhesives, crimping, detent means or the like. These closed containers may be square or of any other desired configuration. It is essential, however, that each container be provided with a ribbon slot or aperture 19 for the passage of ribbon F as it is wound from one spool to the other during use upon the machine. The lower or bottom part of each closed container C and D is provided with a centrally disposed opening 20, the diameter of which is slightly greater than the path of travel for the driving pins 15.

As before stated, each ribbon cartridge includes a pair of spools A and B and the ribbon F is preferably attached to the cores 10 of said spools by forcing its ends into and through the V-shaped notches 21 (Fig. 6) of the cores by the use of any pointed object such as the pencil shown in Fig. 2, or into the cross slots 22 in the cores 10a as shown in Fig. 7, or as shown in Fig. 8 by dropping the ribbon into a slot 23 formed in the wall 14a of the cores 10b to be retained therein by an eyelet carried by ribbon F.

To assemble the separable cartridge for an inked printing ribbon according to the present invention, one end of the ribbon F is attached to and wound upon core 10 of spool A and the other or free end of the ribbon is connected to the core 10 of spool B. The full and empty spools are then inserted into their respective closed containers C and D with that portion or short section 26 of the ribbon which extends between the spools lying within narrow slots or apertures 19 in the containers C and D. The top part of each container is then placed over the bottom part and the parts are suitably sealed, or otherwise secured to one another, to prevent removal of the spools or the ribbon therefrom. Sealing of the containers also serves to prevent rapid drying of the ink contained in the ribbon. After the

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ribbon containers are thus assembled, they are preferably wrapped within a cellophane or like transparent covering material indicated at E so as to be held in side by side or abutting relationship with one another as clearly illustrated in Fig. 5. If desired, any conventional tear strip indicated at 25 may be used in connection with the cellophane wrapper E to facilitate its removal from the containers C and D when the ribbon is to be installed upon a typewriter or like printing machine.

From the foregoing detailed description of the invention, it is now believed that the manner in which the ribbon F is installed upon or removed from a typewriter is quite obvious. For example, the separable cartridge is delivered to the user packaged as illustrated in Fig. 5 and contains two ribbon and spool containers C and D which are held in side by side or abutting relationship by any suitable means such as the cellophane covering material E. To install the ribbon F upon a typewriter, a person need only to pull the tear strip 25 to divide or sever the covering material E so that it may be slid or otherwise removed from the ribbon containers C and D. The person installing the ribbon then merely grasps the two closed containers C and D, as shown in Fig. 1, and pulls them apart to withdraw a short section 26 of the ribbon F from the full spool without touching the inked ribbon with the fingers. This short section of ribbon (indicated at 26 in Fig. 1) now extending between the spaced containers C and D is then inserted or lowered into the eyes 27 of the ribbon vibrator arm 28 and the containers are then inserted into their respective ribbon cups 16 and 17 of the machine so that the ribbon drive shafts 12 enter the bores 11 of cores 10 and the driving pins 15 enter any aligned opening 13 in said cores. As the drive shaft 12 for the empty spool is rotated, ribbon F will be wound upon the core of such empty spool as it is withdrawn from the full spool in the conventional and well-known manner. The closed containers C and D are held against rotation within their respective cups 16 and 17 so that, regardless of which direction the ribbon is driven, the containers are held stationary while the spools therein are permitted to rotate.

When the closed ribbon spool containers C and D are made square, as shown in Figs. 1, 2 and 3, to prevent rotation within their respective cups 16 and 17, the conventional round ribbon spool cups can be used by providing slots 29 in the circular wall portion 30 to accommodate the four corners of the square containers as clearly illustrated in Figs. 3 and 9. By this slight alteration of the conventional ribbon spool cups of a typewriter, the improved separable cartridge for an inked printing ribbon as described herein may be used or ribbons packaged in the conventional way may also be used when desired.

It will now be appreciated that through the use of the present invention, installation of a typewriter ribbon upon a typewriter or its removal therefrom can be quickly and conveniently accomplished without danger of soiling the fingers through contact with the ribbon ink. It will also be observed that the ends of the ribbon are securely attached to the supply and take-up spools at the time the ribbon is packaged and, therefore, subsequent installation upon or removal from a typewriter can be accomplished without the necessity of attaching a free end of the ribbon to the take-up or empty spool.

While the closed containers C and D for the ribbon spools A and B have been shown square for the reasons specified, it is to be understood that such containers can be of any other desired configuration and may even be circular if desired, providing they are retained against rotation during the operation of winding the ribbon from one spool to the other.

While there are above disclosed but a limited number of embodiments of the structure, process and product of the invention herein presented, it is possible to produce still other embodiments without departing from the

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inventive concept herein disclosed, and it is desired therefore that only such limitations be imposed on the appended claims as are stated therein, or required by the prior art.

The invention claimed is:

1. A cartridge for an inked printing ribbon comprising: a pair of substantially closed containers; a rotatable support in each container; an inked printing ribbon having its ends attached to said rotatable supports respectively and wound upon at least one of said supports; and removable means adapted to initially hold said containers in close proximity to one another.

2. A separable cartridge for an inked printing ribbon comprising the combination of: a pair of substantially closed non-circular containers; a rotatable ribbon support disposed within each of said containers; and inked printing ribbon having its ends attached to said rotatable ribbon supports respectively and adapted to be wound upon one of such rotatable supports as it is removed from the other of such supports; and discardable means for initially holding said closed containers together with a short section of such ribbon lying in adjacent openings formed in said closed containers.

3. A separable cartridge for a typewriter ribbon comprising the combination of: a pair of substantially closed transparent containers, each formed of two halves and having a narrow ribbon receiving aperture formed therein; a ribbon spool rotatably mounted in each of said containers; an inked typewriter ribbon wound upon said spools and adapted to pass through said ribbon apertures in said containers when fed from one spool to the other; and means for initially retaining said containers in close proximity relative to one another with said narrow ribbon apertures disposed adjacent one another.

4. A separable cartridge of the class described comprising the combination of: an inked printing ribbon; a pair of ribbon spools; means for attaching one end of said ribbon to one of said spools and the other end of said ribbon to the other of said spools; a pair of substantially closed containers adapted to receive said spools and ribbon and each container being provided with a ribbon receiving aperture; and removable means for initially holding said containers in abutting relationship until installation of the ribbon upon a typewriter or like printing machine is desired.

5. A separable cartridge as claimed in claim 4 in

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which each ribbon spool includes a core and a single flange; and wherein each core is provided with a central bore and a plurality of openings radially disposed therearound.

6. A separable cartridge as specified in claim 4 wherein the core of each spool is provided with a V-shaped slot for purposes of attaching an end of the ribbon thereto.

7. A separable cartridge for a typewriter ribbon comprising the combination of a pair of ribbon spools; an inked printing ribbon wound upon said spools; a pair of substantially closed containers receiving said ribbon spools and ribbon and adapted to be received by and held against rotation within a pair of ribbon cups on a conventional typewriter, each of said containers having a pair of apertures, one aperture in each container serving as a passageway for said ribbon and the other aperture in each container serving to receive a ribbon drive shaft; and means for initially holding said containers in close proximity relative to one another.

8. A separable cartridge for packaging a typewriter ribbon and a pair of ribbon spools comprising the combination of: a pair of ribbon spools; an inked printing ribbon wound upon said spools; a pair of substantially closed containers receiving said ribbon spools and ribbon, each of said containers being provided with a ribbon passageway and a shaft aperture; removable means for initially holding said containers in side by side abutting relationship relative to one another including a transparent cover; and means for removing said transparent cover from said containers when installation of the containers upon a typewriter or like printing machine is desired.

9. A separable cartridge for packaging a typewriter ribbon as claimed in claim 8 wherein the means for removing said transparent cover from the containers comprises a tear strip carried by said cover and located adjacent the abutting sides of said containers.

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