Jan. 26, 1954 R. HURTADO S. 2,667,257

SPOOL FOR TYPEWRITER RIBBONS

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Fig. 1

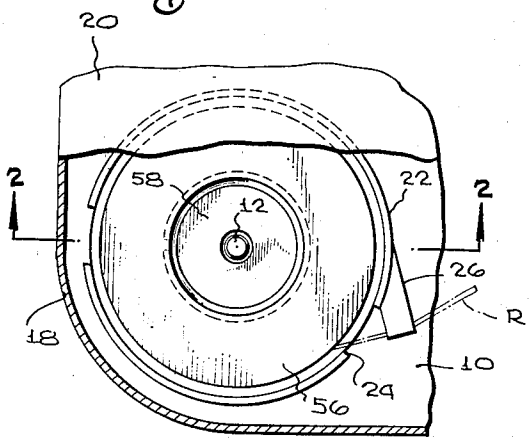


Fig. 3

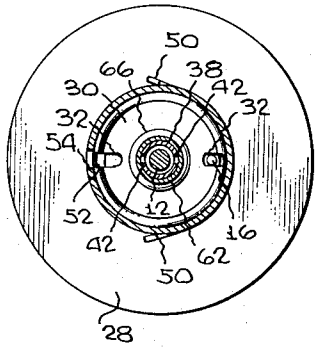


Fig. 2

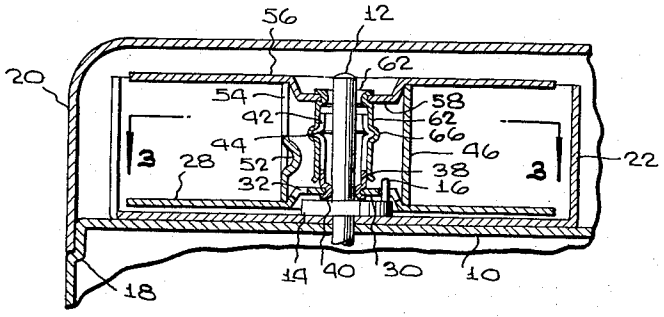
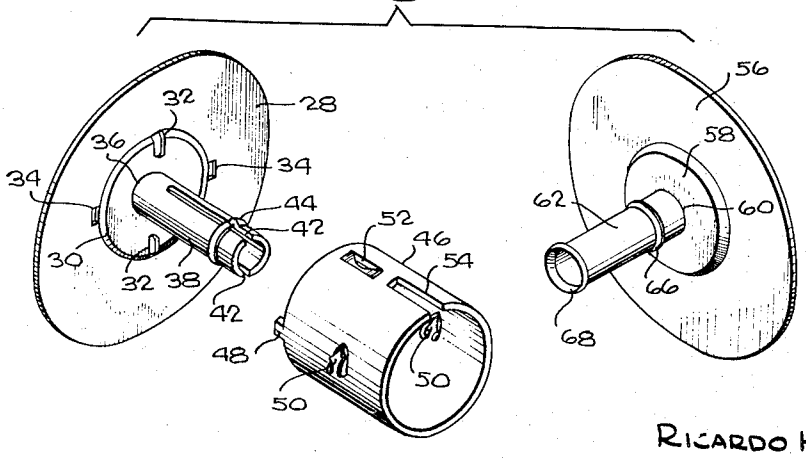


Fig. 4



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SPOOL FOR TYPEWRITER RIBBONS

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2 Claims. (Cl. 197—175)

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This invention relates to a spool for typewriter ribbons, and more particularly, has reference to a spool of the character described wherein only a portion of the spool need be discarded when a ribbon is being replaced.

In conventional ribbon spool construction, the replacement of a used ribbon by a new one requires that the entire old spool be discarded, a completely new spool being substituted therefor. Understandably, this raises, to a substantial degree, the cost of new typewriter ribbons, and additionally, involves a wastage of metal.

In view of the above, it is the broad object of the present invention to provide a ribbon spool construction wherein the ribbon will be wound upon an inexpensive core, said core constituting the only metal part with which the ribbon is sold, and being adapted for separable connection to a pair of opposed discs that constitute permanent parts of the typewriter.

Another important object is to provide a ribbon spool construction as described, wherein the sectional spool construction constituting the present invention will be applicable to conventionally formed typewriters already in use without the necessity of modifying or redesigning said typewriters.

Still another important object is to provide a ribbon spool of the type stated in which the discs and replacement core can be assembled with maximum facility, and without the need of tools of any kind.

Still another important object is to provide a ribbon spool wherein the replacement core will be particularly designed in a manner to facilitate the winding of a ribbon thereon at the factory for distribution of the wound ribbon and core.

Yet another important object is to provide a ribbon spool as described, wherein the replacement core will be adapted for the winding of a ribbon thereupon in either direction.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a top plan view of a ribbon spool formed in accordance with the present invention, a typewriter on which said ribbon spool is mounted being illustrated fragmentarily;

Figure 2 is a sectional view taken substantially on line 2—2 of Figure 1;

Figure 3 is a sectional view taken on line 3—3 of Figure 2; and

Figure 4 is an exploded perspective view of the ribbon spool.

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Referring to the drawings in detail, at 10 I have designated a portion of the body of a conventionally constructed typewriter having rotatably mounted therein the upstanding spindle 12. The spindle 12, as will be appreciated, is rotated by the conventional mechanism, and has rigid therewith a wheel 14 provided with a marginally located, upstanding dog 16.

Formed upon the body 10 in spaced relation to the spindle 12 is a supporting ledge 18 on which is removably mounted a protective spool cover 20.

A spool support cup 22 is mounted upon the body 10, and at one or more locations upon its periphery is provided with a recess 24 arranged contiguous to a ribbon guide 26 through which the ribbon R is fed during operation of the machine.

All of this is conventional construction and does not, per se, constitute part of the present invention.

The ribbon spool formed in accordance with the present invention includes a circular bottom disc 28 having a concentric, upwardly offset center portion defining a frusto-conical seat 30.

Within the marginal portion of the seat 30 at diametrically opposite locations thereupon, I provide a pair of radial slots 32, either of which is adapted to receive the dog or pin 16 (Figure 2). In this way, the disc 28 is removably assembled with the spindle 12 and its associated wheel 14 for rotation by the spindle during operation of the machine.

Also formed in the disc 28, and disposed equidistantly from the respective radial slots 32, are diametrically opposite apertures 34, these being formed in the disc immediately beyond the periphery of the seat 30.

The disc 28 is provided with a center opening 36, receiving one end of an inner sleeve 38. The inner sleeve 38 projects upwardly from the disc 28, and is secured permanently at its lower end to the disc by formation of an annular crimp 40 at said lower end of the inner sleeve, said crimp defining a circumferential groove on the sleeve in which the edge of the center opening 36 is engaged.

The upwardly projecting portion of the inner sleeve 38 is provided (Figure 4) with diametrically opposite, longitudinal slots 42, said slots terminating at their lower ends above the seat 30, and opening at their other ends upon the upper end of the inner sleeves.

Intermediate the opposite ends of the inner

sleeve, and spaced closely from the upper end thereof, an outwardly directed, annular rib **44** is provided, said rib being defined by crimping the sleeve outwardly during the manufacture thereof.

Included in the ribbon spool construction is a cylindrical core **46**, the diameter of which is substantially equal to the diameter of the base of the seat **30**. At one end the core **46** is integrally formed with diametrically opposite lugs **48** proportioned to enter the apertures **34** of the disc **28**. When the core **46** is to be assembled with the disc **28**, it is necessary merely that the lugs **48** be dropped into the apertures **34**, there being no necessity of bending the lugs inwardly to secure the connection. It will be readily appreciated, in this regard, that the insertion of the lugs **48** in the apertures **34** will connect the core **46** to the disc **28** for rotation therewith.

Disposed substantially medially between the opposite ends of the replacement core **46** are diametrically opposite, pointed teeth **50** which are struck outwardly from the material of which the core is formed. The teeth **50**, as will be noted from either Figure 3 or Figure 4, are pointed in a direction tangential to the core, and are extended outwardly from the core in opposite directions. This construction permits a single form of replacement core **46** to be used, whether the ribbon is to be wound thereupon to the left or to the right.

The core **46** is also formed with a longitudinally disposed, instruck node **52** aligned with a longitudinal slot **54** that opens upon the upper end of the core. This construction is embodied in the core to facilitate the winding of a ribbon thereupon at the factory, it being understood that when the ribbon is to be initially wound upon the core, said core would be positioned upon a rotating shaft, not shown, recessed to receive the node **52** and having an outwardly directed pin or rib extending into the slot **54**. Additionally, the slot **54** provides means adapted to receive a hook member, not shown, which is provided on some typewriter ribbons for the purpose of securing said ribbons to their associated cores. Usually, however, the ribbon is secured at one end to the core **46** by impaling of the ribbon end with a selected tooth **50**.

An upper disc has been designated by the reference numeral **56**, and corresponds in outer diameter to the outer diameter of the lower disc **28**. The upper disc is centrally formed with a downwardly offset frusto-conical seat or boss **58**, which is adapted to enter the open upper end of the replacement core **46** when the ribbon spool is being assembled.

Formed in the upper disc is a center opening **60** in which is engaged the upper end of an outer sleeve **62**, said upper end of the outer sleeve being annularly crimped inwardly for engagement with the edge of the opening **60**.

Intermediate its opposite ends, the outer sleeve is formed with an outstruck, circumferential collar **66** defining an interior groove in the outer sleeve proportioned to receive the exterior rib **44** of the inner sleeve.

At its lower end the outer sleeve **62** is flared, as at **68**, for ease in fitting of the outer sleeve upon the sleeve **38**.

As will be noted from Figure 2, the inner sleeve **38** is adapted to telescope within the outer sleeve when the ribbon spool is to be assembled, the slots **42** permitting the inner sleeve to be reduced radially to an extent sufficient to permit entry thereof into the outer sleeve. When the inner sleeve is telescoped fully within the outer sleeve, with its rib **44** engaged in the interior groove of the outer sleeve, the diametrically opposite side wall portions of the inner sleeve defined by formation of the slots **42** therein tend to spring outwardly, thus to bind the sleeves tightly while still permitting them to be separated when a new core **46** is to be substituted for an old one.

By reason of the construction illustrated and described, replacement ribbons can be wound upon a core **46**, and need not be sold with the upper and lower discs. In this way, a considerable saving in metal, and an attendant reduction in the over-all cost of the ribbon spool is effected.

In use, and assuming that a new core **46** is to be assembled with the other components of the ribbon spool, the upper disc **56** is lifted upwardly, disengaging the sleeves of the respective discs from one another. The old core **46** can then be lifted off the lower disc, and a new core substituted therefor. The new core is mounted upon the lower disc merely by entry of the lugs **48** into the apertures **34**, and can be readily aligned concentrically with the lower disc by reason of the frusto-conical seat **30**, the side wall of which will engage the lower end of the core **46** and guide it to its proper location relative to the lower disc.

After the core **46** has been placed upon the lower disc in this manner, it is merely necessary that the upper disc **56** be returned to its previous position by forcing the outer sleeve downwardly over the inner sleeve until the sleeves are engaged in the manner illustrated in Figure 2.

When the upper disc is being returned to its proper position, the downwardly offset boss **58** thereof will engage the upper end of the core **46**, so as to guide the upper disc to its proper location.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor changes in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. A sectional typewriter ribbon spool comprising: a lower disc adapted to be connected to the spool-rotating spindle of a typewriter for rotation thereby, said lower disc having a plurality of apertures spaced from its center of rotation; an inner sleeve secured to and upstanding from the lower disc, said inner sleeve being adapted to receive the spindle and being formed with a circumferential exterior rib; an upper disc spaced above the lower disc; an outer sleeve secured to and depending from the upper disc, and having a circumferential interior groove releasably engageable with said rib, said inner sleeve telescoping within the outer sleeve to separably connect the discs to one another; and a core adapted for the winding of a ribbon thereon circumposed about the sleeves, the core abutting at its opposite ends against the respective discs and including a plurality of lugs at one end proportioned to enter said apertures to separably connect the lower disc and core for joint rotation.

2. A sectional typewriter ribbon spool comprising: a lower disc adapted to be connected to the

spool-rotating spindle of a typewriter for rotation thereby, said lower disc having a plurality of apertures spaced from its center of rotation; an inner sleeve secured to and upstanding from the lower disc, said inner sleeve being adapted to receive the spindle and being formed with a circumferential exterior rib; an upper disc spaced above the lower disc; an outer sleeve secured to and depending from the upper disc and having a circumferential interior groove releasably engageable with said rib, said inner sleeve telescoping within the outer sleeve to separably connect the discs to one another; a core circumposed about the sleeves, the core abutting at its opposite ends against the respective discs and including a plurality of lugs at one end proportioned

to enter said apertures to separably connect the lower disc and core for joint rotation; and outstruck teeth on said core adapted to be selectively extended through one end of the typewriter ribbon for winding of the ribbon upon the core.

RICARDO HURTADO S.

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