Aug. 5, 1924. 1,503,896

DE WITT C. HARRIS

TYPEWRITER RIBBON SPOOL

Filed March 22, 1922

FIG. 1

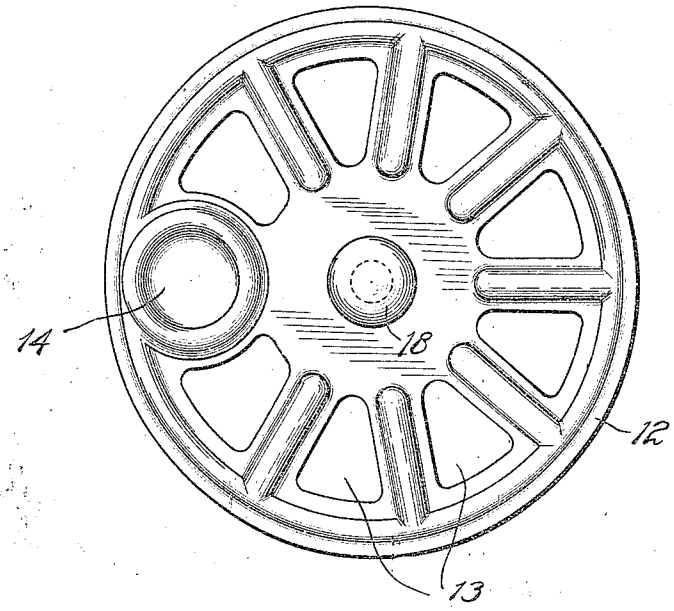


FIG. 2

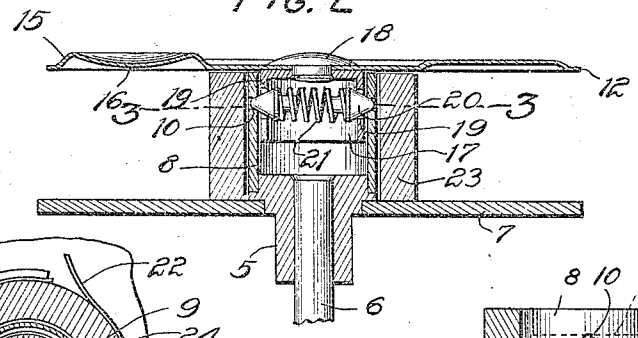


FIG. 3

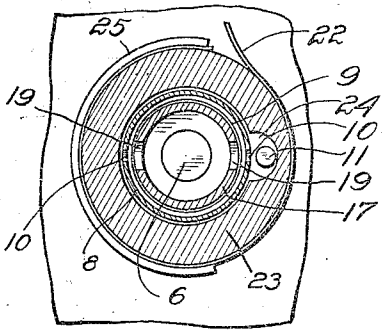
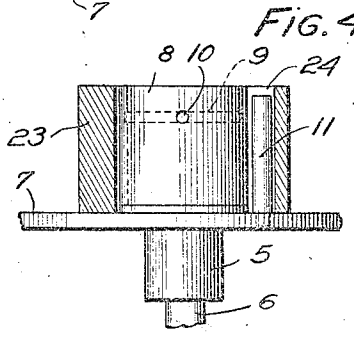


FIG. 4



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UNITED STATES PATENT OFFICE.

DE WITT C. HARRIS, OF PINELAND, FLORIDA.

TYPEWRITER-RIBBON SPOOL.

Application filed March 22, 1922. Serial No. 545,645.

To all whom it may concern:

Be it known that I, DE WITT C. HARRIS, a citizen of the United States, residing at Pineland, in the county of Lee and State of Florida, have invented certain new and useful Improvements in Typewriter-Ribbon Spools, of which the following is a specification.

This invention relates to an improved ribbon spool for typewriters and the general objects of the invention are to provide a spool which facilitates the removal and replacement of the typewriter ribbon thereon and which obviates the danger of soiling the operator's fingers during the operation of changing the ribbon.

More specifically stated, one of the objects of the invention is to provide an improved spool which comprises an upper section that is demountable simply by pulling upwardly thereon and which is yieldingly secured in locked engagement with the lower section by means of spring detents automatically withdrawable when the upper section is raised.

Another object is to provide an improved construction of and relationship between the lower section of the ribbon spool and the removable ribbon core which is mounted thereon.

The invention also aims to provide a spool of extremely simple and durable construction which may be cheaply manufactured and which has other advantages that will be understood from the following detailed description.

In the accompanying drawings, Figure 1 is a plan view, and Fig. 2 a vertical axial sectional view of a ribbon spool embodying the features of my invention.

Fig. 3 is a horizontal section through the spool in the plane of line 3—3 of Fig. 2, with the holding dogs and spring omitted.

Fig. 4 is a fragmentary elevation of the lower spool section showing the ribbon core in cross section.

I have illustrated in the drawings and will herein describe in detail the preferred one of many possible embodiments of my invention but I do not intend this specific disclosure as a limitation on the definition of the scope of the invention which will be pointed out in the appended claims.

The exemplary embodiment of the invention shown in the drawings comprises upper and lower sections arranged to be readily separated. The lower section comprises a hub 5 which is arranged to be secured upon the upper end of a shaft 6, the hub or the shaft being suitably mounted for rotation in a typewriter frame. On this hub is fixed a lower circular plate 7 which is centrally apertured to receive the said hub. To the upper end of this hub is fixed a collar 8 which is provided with an annular groove 9 and a pair of diametrically opposed apertures 10 located in the same horizontal plane as and registering with said groove. A pin 11 is suitably fixed with relation to the lower plate 7 and the collar 8, in the present instance by securing the lower end of the pin in a socket in the plate 7.

The upper spool section comprises a plate 12 of circular form which may, if desired, have openings 13 therein through which the ribbon on the spool will be visible. This plate is preferably formed of sheet metal stamping and is provided with a recess 14 formed in the stamping operation to afford a cup for receiving the end of the operator's finger to facilitate turning the spool. This cup comprises a rim portion 15 rising from the plane of the plate and a central portion 16 depressed from the upper edge of said rim, the bottom of said central portion lying approximately in the plane of the plate.

A cylindrical member 17 which is preferably in the form of an inverted cup is secured to the lower side of the top plate 12 coaxial therewith by suitable means such as a rivet 18 passing through the plate and the end wall of the cup. The external diameter of the cup is slightly less than the internal diameter of the collar 8 so that the cup may be readily inserted into and withdrawn from said collar. The cup 17 has diametrically opposed apertures 19 through which a pair of holding dogs 20 project, each of said dogs having a head preferably conical in shape and each dog having a stem at its inner end of less diameter than said head. A coiled compression spring 21 extends diametrically across the cup and at its opposite ends receives the two stems of said dogs and urges the dogs apart. The apertures 19 in the cup are slightly smaller than the largest diameter of the dogs so that when the upper plate 12 of the spool and the cup are withdrawn from the lower section, the dogs cannot escape through the apertures 19. When the spool is assembled the ends of the dogs engage in the apertures 10 in the

collar 8 and lock the two sections together.

The ribbon 22 is wound upon a core 23 which may be made of wood, said core being arranged to fit over the collar 8 and having a notch or groove 24 arranged to receive the pin 11 so as to prevent relative rotation between the lower spool section and the core. The ribbon may be secured on the core by means of an arcuate spring slip 25 which binds the first lap of the ribbon to the core, the succeeding laps being wound upon said clip.

When the operator desires to change ribbons he simply pulls upwardly on the top plate 12 which causes the heads of the dogs 20 to be cammed inwardly out of engagement with the apertures 10 in the collar 8, whereupon the top plate may be fully withdrawn and laid aside. The core 23 and the body of the ribbon thereon is then lifted off the lower spool section and another core with ribbon wound thereon is put into its place. The top plate is then replaced by inserting the cup 17 into the collar 8 until the ends of the dogs 20 snap into their apertures 10 in the collar 8. In case the top plate is not placed in such position with the dogs registering with the apertures 10, said dogs will engage in the groove 9 and the top plate 12 may then be rotated until the dogs engage in said apertures. The dogs 20 are forced inwardly by the upper end of the collar 8 when the cup 17 is first inserted into said collar.

I claim as my invention:

1. A typewriter ribbon spool comprising two separable sections, the lower section including a central tubular hub adapted to be mounted upon a driving shaft, a plate centrally apertured to receive and to be secured to said hub, a collar fixed to said hub above said plate and having a pair of diametrically opposed apertures, the upper section of the spool comprising a top plate, an inverted cup-shaped member located beneath said plate and having its end wall secured to the center of said plate, said cup being adapted to telescope into the upper end of said collar and the cup having diametrically opposed openings in its tubular portion arranged to register in said apertures in the collar, a pair of opposed dogs located inside of said cup member and comprising conical heads projecting partially through the openings in said member and arranged to engage in the apertures in said collar, said dogs further comprising stems of reduced size on their inner ends, and a coiled spring having its ends receiving said stems and urging said dogs outwardly, said dogs being arranged to yield inwardly to permit the upper spool section to be withdrawn from or associated with the lower section.

2. A typewriter ribbon spool comprising two separable sections, the lower section including a plate having a central hub, a central collar rising from and fixed to said plate and having a pair of diametrically opposed apertures, the upper section of the spool comprising a top plate, a tubular member located beneath and centrally secured to said plate, said tubular member being adapted to telescope into the upper end of said collar and the said member having diametrically opposed openings in its tubular portion arranged to register with said apertures in the collar, a pair of opposed dogs located inside of said tubular member and comprising cam portions projecting partially through the openings in said member and arranged to engage in the apertures in said collar, and a coiled spring having its ends engaging and urging said dogs outwardly, said dogs being arranged to yield inwardly to permit the upper spool section to be withdrawn from or associated with the lower section.

3. A typewriter ribbon spool comprising upper and lower separable sections, the lower section having an upstanding tubular part and the upper section having a depending tubular part arranged to telescope into the first mentioned tubular part, said tubular parts having diametrically opposed apertures arranged to register, and a pair of opposed spring pressed dogs carried by the upper tubular part and arranged to pass through the apertures therein and into engagement with the apertures in the lower tubular part to lock spool sections together.

4. A typewriter ribbon spool comprising upper and lower separable sections having tubular parts arranged to telescope with each other, said tubular parts having apertures arranged to register, and yielding means carried by one of said tubular parts and arranged to project through its aperture into the aperture in the other part for locking the two spool sections together.

5. A typewriter ribbon spool comprising upper and lower separable sections comprising telescoping tubular parts having apertures arranged to register and a pair of opposed spring pressed dogs carried by the inner part and having conical heads arranged to project through the apertures in the inner part and engage in the apertures in the outer part for securing the spool sections together, said dogs being arranged to yield automatically to permit of associating and separating the spool sections.

6. A typewriter ribbon spool comprising upper and lower separable sections having tubular telescoping parts, one of said parts having an aperture and having an inner circumferential groove in the same transverse plane as said aperture, the other part having an aperture arranged to register with

said groove and the first-mentioned aperture and having a dog arranged to engage in the two apertures when in register or in said groove when the apertures are not in register.

7. A typewriter ribbon spool comprising upper and lower separable sections having telescoping portions, one of which carries a yielding dog to engage the other, an upright pin fixed to the lower section adjacent to the periphery of the telescoping portion thereon, and a removable ribbon core having a central opening to receive said telescoping sections and also having a vertical groove registering with said opening to receive said pin and thereby prevent relative rotation between said core and the lower sections.

8. A typewriter ribbon spool comprising an upper section which includes a top plate and a depending tubular part secured to the under side of said plate, said part having an aperture therein and a spring pressed dog within said part normally projecting through said aperture.

9. A typewriter ribbon spool comprising an upper section which includes a top plate and an inverted cup centrally secured to the under side of said plate, said cup having diametrically opposed openings in its tubular portion, a pair of dogs within said cup having parts projecting through said openings and a spring within said cup having its ends bearing against said dogs and urging them outwardly.

In testimony whereof, I have hereunto affixed my signature.

DE WITT C. HARRIS.