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W. D. LANDGRAF

3,295,655

DOUBLE UTILITY TYPEWRITER SPOOL

Filed July 26, 1963

FIG. 1

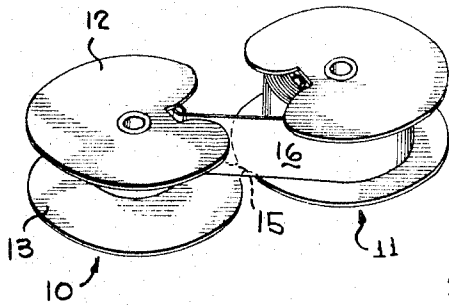


FIG. 2

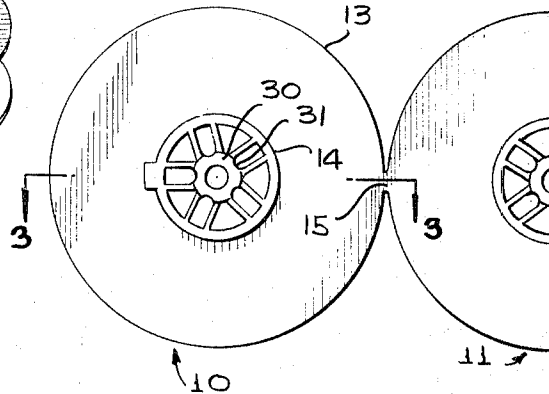


FIG. 3

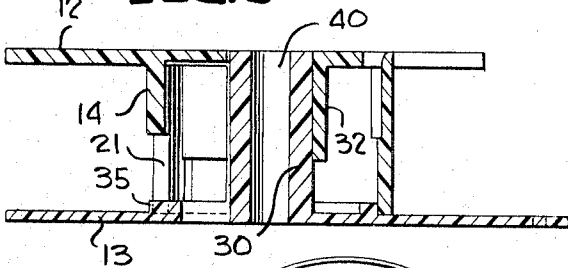


FIG. 4

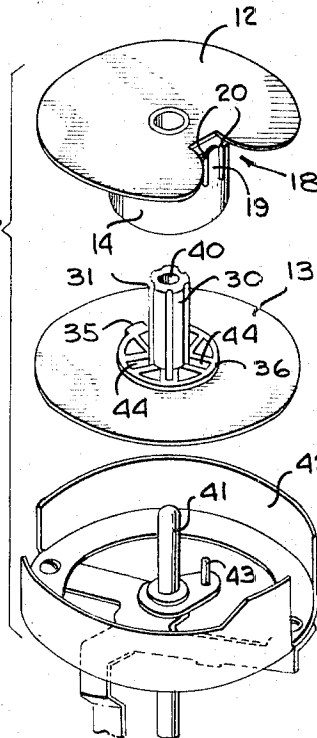


FIG. 5

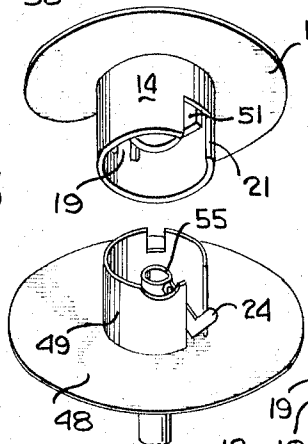


FIG. 6

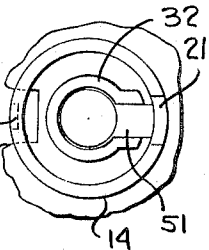
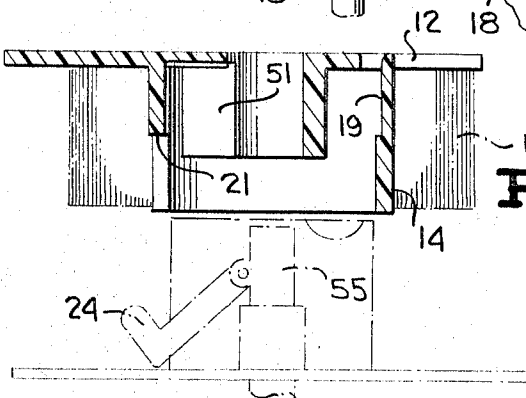


FIG. 7



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1

3,295,655

DOUBLE UTILITY TYPEWRITER SPOOL

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The present invention relates generally to typewriter spools, and more particularly to spools separable into two parts and capable of utilization when combined on one make of machine and useful in one of its parts alone on another make of machine.

Briefly describing the present invention, a pair of spools are provided as a unit. Each spool is fabricated in two parts, and each part includes a flange and a hub. The hubs interlock to form a doubly flanged spool, for use on one make of typewriter. One flange and its hub can then be employed as a spool for another make of typewriter, which utilizes spools requiring no bottom flange. The hub and flanges are so arranged that the spools can be driven from the drive and reverse mechanisms of the appropriate typewriters.

It is accordingly, an object of the present invention to provide a novel typewriter spool arrangement capable of utilization on two distinct makes of typewriter, one of which requires a two flanged spool and the other of which requires a one flanged spool.

The above and still further objects, features and advantages of the present invention will become apparent upon consideration of the following detailed description of one specific embodiment thereof, especially when taken in conjunction with the accompanying drawings, wherein:

FIGURE 1 is a view in perspective of a pair of spools according to the invention, with ribbon installed;

FIGURE 2 is a plan view of bottom elements of the spools of FIGURE 1;

FIGURE 3 is a view in section of a double flange spool, as taken on the line 3-3 of FIGURE 2;

FIGURE 4 is an exploded view in perspective illustrating the separate components of a two flanged spool, and their relation to each other and to a typewriter well;

FIGURE 5 is a view in perspective of a single flanged spool and its relation to a typewriter spool drive mechanism;

FIGURE 6 is a view in plan of the flange structure of one spool component; and

FIGURE 7 is a view in side elevation of the spool of FIGURE 5 in relation to a typewriter spool drive mechanism.

Proceeding now by reference to the drawings, the reference numeral 10 denotes a first spool and the reference numeral 11 a second spool, of a pair adapted for installation on a typewriter. The spools 10 and 11 are duplicates and each includes an upper flange 12, a lower flange 13 and a connecting hub 14. The lower flange 13 of a pair are joined by a bridge 15, which can readily be broken when the spools are to be installed. A ribbon 16 is initially wound on one spool and in the normal operation of the typewriter winds from the one spool to the other, and then back, under control of feed and reverse mechanism forming no part of the invention, but with which the spool of the invention cooperates.

The spool of the invention is fabricated of two separable elements. In respect to the element comprising flange 12, the flange comprises a cut-out 18 which affords space for conveniently looping a slit in a tape end over the pin 19. The latter is formed in cylindrical hub 14 by leaving slots 20 extending about halfway from the level of the flange, in the wall of the hub 14. Diametrically opposite to the pin 19, is provided a cut-out 21 (FIGURE 5), in the wall of hub 14, which extends from the open end of the hub 14. This cut-out is useful when

2

a single flange spool is employed, as in FIGURE 5, for permitting a reverse lever 24 to sense absence or presence of tape on the hub 14, and thereby to actuate a tape feed reverse mechanism (not illustrated) which is conventional per se.

When the spool components are assembled, as in FIGURES 3 and 4, a hub comprising a fluted cylinder or pin 30 (having flutes 31) upstanding from bottom flange 13, nests in a subsidiary hollow hub 32, disposed interiorly of and concentric with tubular hub 14, extending downwardly from the flange 12. When the bottom flange 13 abuts against the free edge of hub 14, the cut-out or opening 21 extends over an outward projection or lug 35, extending from a slightly raised central boss 36 in flange 13 and locks thereto, so that the two components of the spool are irrotational with respect to each other, when assembled. Hub 30 of flange 13 is disposed, in the mated position of the two spool components, within subsidiary hub 32 of flange 12, and is thus also internal with respect to external hub 14.

The fluted cylinder or column 30 includes an inner axial cylindrical aperture 40, which extends over an axial pin 41 when the spool is located as installed within the well 42 of an appropriate make of typewriter. When so installed a pin 43 extends upwardly through one of the five radially extending slots 44, which are located at equal angles about the fluted hub 30, and can mate with one of the flutes 31. The pin 43 then serves as a drive for the ribbon and also as a tape reverse trigger, in a manner per se well known.

In the typewriter of FIGURE 5, the spool mount which is part of the typewriter, includes a circular plate or flange 48 which serves as a bottom rest for a ribbon, and for the hub 14, and an upstanding hollow cylinder 49 is also included, integral with plate 48, over which the wall of hub 14 can nest, and clearance is then provided between external hub 14 and subsidiary hub 32, for entrance of cylinder 49. The hub 32 also includes an axially extending passage 51, through its wall, aligned with cut-out 21, to permit free access and movement of trigger 24, and hub 32 is hollow to permit insertion of a cylinder 55, which serves to center hub 32 on the typewriter and also as a pivot for trigger 24.

In operation, if the spool is to be mounted on a typewriter which includes a bottom plate 48 and a trigger 24 (FIGURE 5) the flange 13 is removed, leaving the flange 12 and its associated hubs, which is suitable for installation and operation. If, on the other hand, the spool is to be mounted on a typewriter having a well 42, i.e. of the type illustrated in FIGURE 4, the spool components are joined, as in FIGURE 3. The joined elements lock together irrotationally and in effect forms a single complete spool, having all the structural and operational features required for installation and operation in the typewriter.

While I have described and illustrated one specific embodiment of my invention, it will be clear that variations of the details of construction which are specifically illustrated and described may be resorted to without departing from the true spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. A spool for a typewriter ribbon including a first spool component, a second spool component, each of said components including an approximately circular flange, the flanges being of substantially equal diameter, means for securing said spool components in irrotational relation to form a doubly flanged spool, wherein the two flanges are spaced in parallel planes by said means for securing, said components being separable and when separated one of said components forming a singly flanged

3

spool, said singly flanged spool having means integral therewith for securing said typewriter ribbon thereto, said singly flanged spool and said doubly flanged spool being individually usable in alternative typewriter ribbon feed mechanisms.

2. The combination according to claim 1 wherein each of said singly and doubly flanged spools includes means for mounting thereof in said alternative mechanisms, and further includes means for accepting ribbon drive-reverse feed portions of said alternative mechanisms.

3. A typewriter ribbon spool comprising first and second separable components, each of said components having a substantially circular flange, said first component comprising a first centrally disposed tubular hub extending perpendicularly from said flange thereof, said first hub including means for removably attaching a typewriter ribbon thereto and being adapted to have said ribbon wound thereon, said first hub further including a cut-out portion extending from the free end thereof to a point between said free end and said flange, a second tubular hub disposed interiorly of said first hub and concentric therewith and having a cut-out portion substantially aligned with said first-mentioned cut-out portion; said second component comprising a centrally disposed cylindrical portion extending perpendicularly from said flange thereof and having a central hole extending therethrough, said cylindrical portion arranged to mate with said second hub of said first component whereby said first and second components may be separably fastened together, a cylindrical boss concentric with said cylindrical portion and extending relatively slightly above the flange of said second component, said boss arranged to mate with said first hub of said first component and having a projection thereon to mate with said first-mentioned cut-out portion to prevent rotation of said first and second components with respect to each other, said boss having holes located equiangularly therethrough, whereby said separably fastened spool combination of first and second components is adapted for use in a typewriter having for a ribbon feed mechanism a spool mounting pin and a forward-reverse drive pin, said cylindrical portion hole of said second component being adapted to mate with said mounting pin and said holes in said boss being adapted to mate with said forward-reverse drive pin, and whereby said first component is separable from said spool combination and adapted for use in a typewriter having for a ribbon feed mechanism an integral spool mounting plate and central hub extending therefrom with a pivoted reverse trigger, said first and said second hubs adapted to mate with said mounting hub and said aligned cut-out portions adapted to permit free access and movement of said pivoted trigger.

4. A typewriter ribbon spool adapted for interchangeable mounting and operation in typewriters having ribbon spool well with central spool mounting pin and offset spool forward-reverse drive pin, and in typewriters having flanged drive mechanism with concentric ribbon spool mounting hubs and pivoted spool reverse trigger, said spool including a pair of flanged component parts, a first of said flanged component parts having hub means centrally disposed and axially extending from the flange surface thereof, said hub means having slot means therein opposite said flange surface and being adapted to mate with said mounting hub of said flanged typewriter drive mechanism, said slot means arranged to receive and permit free movement of said pivoted trigger, and a second of said flanged component parts adapted to be separably combined with said first flanged component part for mounting said combination in said typewriter having ribbon spool well, said second flanged component part comprising a centrally disposed cylindrical element axially extending from the flange surface thereof, said cylindrical element being arranged to mate with said hub means of said first component and having a central hole extending therethrough for receiving said central mounting

4

pin, the flange surface of said second flanged component part having holes spaced circumferentially about said cylindrical element for receiving said offset pin, said flanged component parts, when joined in said combination, forming a double flanged spool with the flange surface of each component part being parallel to and spaced from the flange surface of the other component part by said hub means.

5. The invention according to claim 4 including means extending from said flange surface of said second component part for mating with said slot means of said first component part to prevent rotation of said component parts with respect to each other.

6. The invention according to claim 4 wherein said hub means of said first flanged component part includes means thereon for fastening a typewriter ribbon thereto, said hub means being adapted to have said ribbon wound thereon.

7. The invention according to claim 4 wherein said cylindrical element of said second component part is fluted along the length thereof, the flutes being arranged to engage said offset drive pin to provide additional driving force to said ribbon spool.

8. A typewriter ribbon spool for use with alternative conventional typewriter ribbon feed mechanisms, a first of said feed mechanisms being characterized by a spool mounting plate with a central mounting cylinder and pivoted reverse feed lever sensitive to presence or absence of ribbon on said spool, and a second of said feed mechanisms being characterized by a ribbon spool well having a central mounting pin and forward-reverse drive pin offset therefrom; said spool comprising a pair of mating components; the first of said mating components having a substantially circular flange with a centrally disposed tubular hub extending therefrom, said hub having a cut-out portion extending toward said flange from the free end thereof opposite said flange, a further tubular hub disposed interiorly of and concentric with said first-mentioned tubular hub and extending from said flange, said further hub having a cut-out portion in substantial alignment with said first-mentioned cut-out portion, said further hub being adapted to receive said mounting cylinder at the free end thereof opposite said flange for secure engagement of said first component with said mounting cylinder, said flange thereby forming with said mounting plate a pair of opposed surfaces with said tubular hubs interposed therebetween and said cut-out portions being adapted to permit free movement of said pivoted lever when said first component is mounted on said mounting cylinder; and the second of said mating components having a substantially circular flange approximately equal in diameter to said first-mentioned flange with a centrally disposed pin extending therefrom for engagement with said further tubular hub of said first mating component, whereby said pair of mating components are readily separable, said centrally disposed pin having a hole extending therethrough to receive said mounting pin of said second feed mechanism, said flange of said second component having holes extending therethrough circumferentially located about said centrally disposed pin to receive said offset drive pin, said first mating component thereby being separably adapted for mounting on said first feed mechanism, and the combination of said first and second mating components forming a double flange spool adapted for alternative mounting on said second feed mechanism.

9. The invention according to claim 8 including means extending from said flange of said second mating component for mating with said cut-out portion of said first-mentioned tubular hub of said first mating component to prevent rotation of said components with respect to each other.

10. The invention according to claim 8 wherein said first-mentioned tubular hub of said first mating component includes means thereon for fastening a typewriter

5

ribbon thereto, said first-mentioned tubular hub being adapted to have said ribbon wound thereon.

11. The invention according to claim 8 wherein said centrally disposed pin of said second mating component is fluted to engage said offset drive pin extending through one of said holes in said flange to provide additional driving force for said ribbon spool.

12. A ribbon spool comprising two mating component parts, one of said parts having a flat surface, a centrally disposed hub extending from said flat surface and having a hole extending therethrough substantially normal to said flat surface, said hub having a cut-out portion directed from the free end thereof toward said flat surface, a second hub surrounding said central hub and extending from said flat surface, a cut-out portion in the free end of said second hub substantially aligned with said cut-out portion of said central hub, means located on said second hub for securing a ribbon thereto, the other of said parts having a flange with a centrally disposed pin extending therefrom adapted to mate with the central hub of said first-mentioned part, said central pin having an axially located hole extending therethrough, and a plurality of holes through said flange circularly aligned about said central pin; said two mating components being readily separable from each other, and forming in the mated combination a double flanged spool wherein said flat surface and said flange are spaced by said second hub.

13. The combination according to claim 12 wherein said other part includes means extending from said flange and aligned with one of said cut-out portions of said first-mentioned part to prevent rotation between said parts when mated.

14. The combination according to claim 12 wherein said central pin is fluted, the flutes thereof being aligned with said circularly aligned holes in said flange.

15. An inked ribbon spool pack comprising a pair of identical double flanged spools, each of said double flanged spools including a first spool component and a second spool component, each of said spool components including a flange and hub means for securing the spool components associated with each double flanged spool in irrotational relation, one of said first and second spool components of each double flanged spool comprising a single flanged spool, a ribbon wound between the two single flanged spools of said pair of double flanged spools, a bridge interconnecting one flange of one of said double flanged spools with an identical flange of the other double flanged spool to form a unitary spool pack, said bridge being readily severable to form two complete double flanged spools for use in conjunction with a first typewriter ribbon drive-reverse mechanism, and each of said double flanged spools being readily separable to provide a single flanged spool for use in conjunction with a second typewriter ribbon drive-reverse mechanism.

16. A typewriter spool including a first substantially circular flange, a second substantially circular flange having a diameter substantially equal to the diameter of said first flange, an external hub secured axially to said first flange, an internal hub secured axially to said second flange, said external and internal hubs each having an axial hole extending therethrough and mating to form a double flange spool, said hubs being interposed in mating engagement between the two flanges of said double flange spool, said external hub having an opening in the wall thereof extending from the free end thereof toward said first flange, said first flange with said external hub being readily separable from said second flange with said internal hub to form a single flange spool, said external hub including means for securing a typewriter ribbon thereto, wherein said internal hub is fluted along the outer periph-

6

ery thereof, and wherein said second flange includes openings distributed about the base of said internal hub in mating relationship with the flutes thereof, said axial hole of said internal hub being arranged to accept a center pin of a typewriter well, said openings being arranged and adapted to accept a drive pin of said well.

17. A typewriter spool including a first substantially circular flange, a second substantially circular flange having a diameter substantially equal to the diameter of said first flange, an external hub secured axially to said first flange, an internal hub secured axially to said second flange, said external and internal hubs each having an axial hole extending therethrough and mating to form a double flange spool, said hubs being interposed in mating engagement between the two flanges of said double flange spool, said external hub having an opening in the wall thereof extending from the free end thereof toward said first flange, said first flange with said external hub being readily separable from said second flange with said internal hub to form a single flange spool, said external hub including means for securing a typewriter ribbon thereto, wherein said external hub includes a subsidiary hub disposed interiorly thereof and concentric therewith, said subsidiary hub having an axial hole extending therethrough arranged and adapted to accept a center pin of a flanged typewriter drive mechanism, said external hub and said subsidiary hub being spaced to accept an up-standing hub secured to the typewriter flange, said subsidiary hub further including an opening to enable passage of a trigger pivotally secured to said center pin.

18. A typewriter spool including a first substantially circular flange, a second substantially circular flange having a diameter substantially equal to the diameter of said first flange, an external hub secured axially to said first flange, an internal hub secured axially to said second flange, said external and internal hubs each having an axial hole extending therethrough and mating to form a double flange spool, said hubs being interposed in mating engagement between the two flanges of said double flange spool, said external hub having an opening in the wall thereof extending from the free end thereof toward said first flange, said first flange with said external hub being readily separable from said second flange with said internal hub to form a single flange spool, said external hub including means for securing a typewriter ribbon thereto, wherein is provided a lug integral with said second flange, said lug arranged to mate with said opening in said external hub wall to render said flanges irrotational with respect to each other.

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