Nov. 7, 1933. E. G. CROOKS 1,934,167

CORE FOR TEXTILE MACHINERY SPOOLS

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Fig. 1.

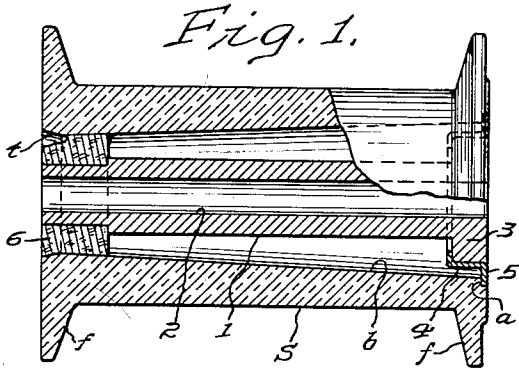


Fig. 2.

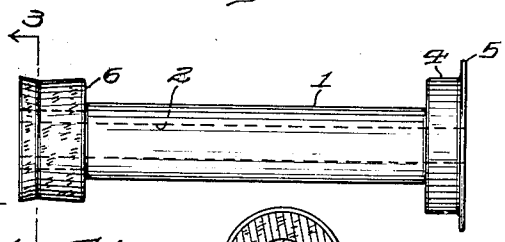


Fig. 3.

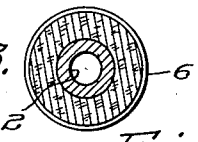


Fig. 5.

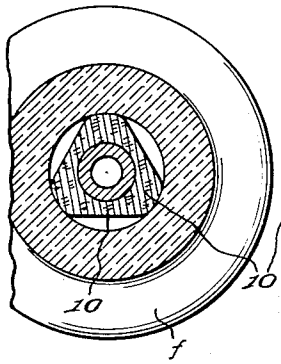


Fig. 4.

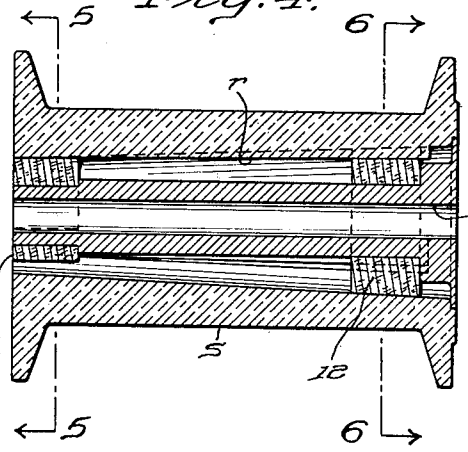


Fig. 6.

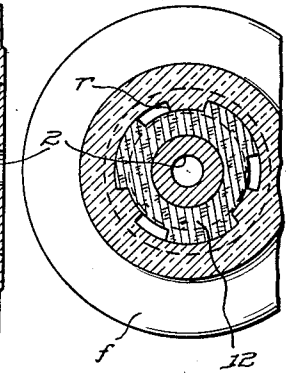


Fig. 7.

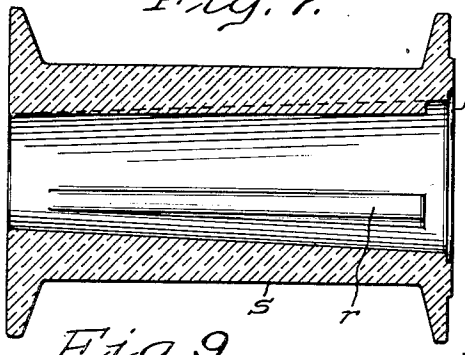


Fig. 8.

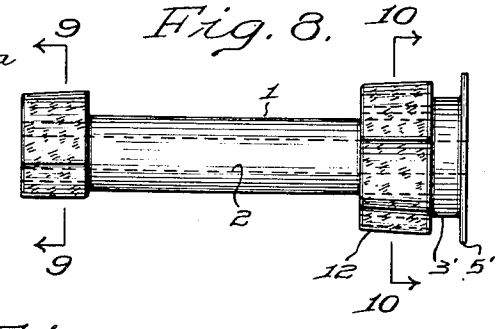


Fig. 9.

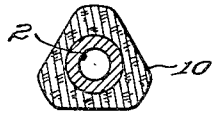
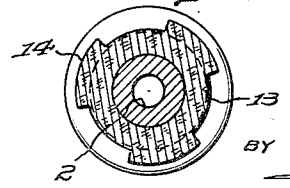


Fig. 10.



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Fig. 12.

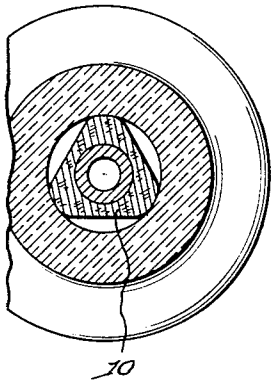


Fig. 11.

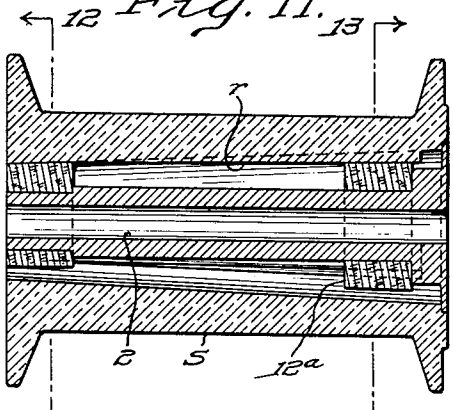


Fig. 13.

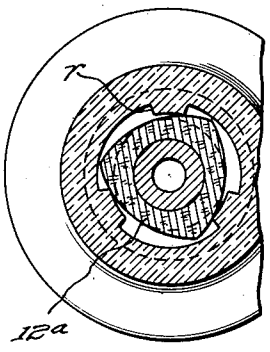


Fig. 14.

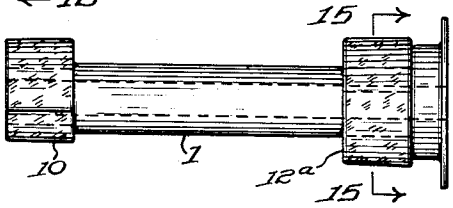


Fig. 15.

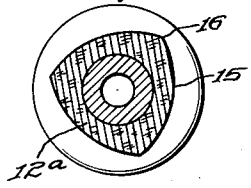


Fig. 17.

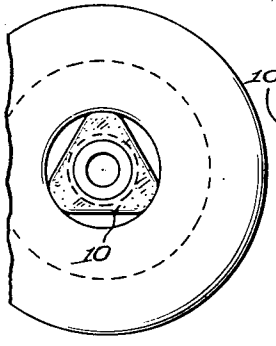


Fig. 16.

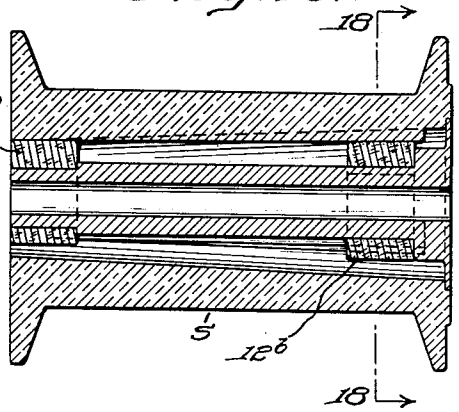


Fig. 18.

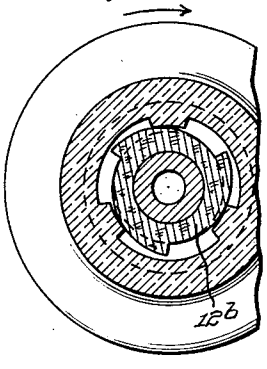


Fig. 19.

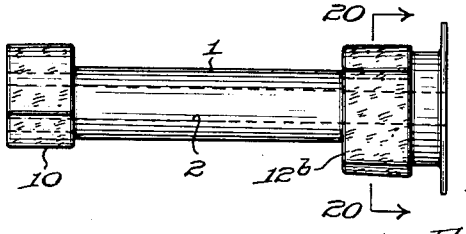
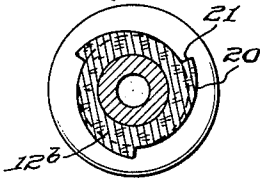


Fig. 20.



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CORE FOR TEXTILE MACHINERY SPOOLS

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Fig. 22.

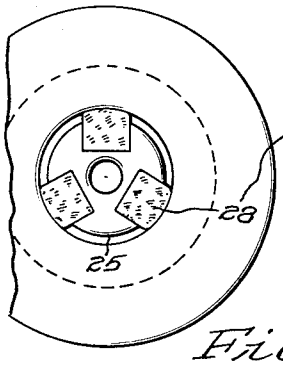


Fig. 21.

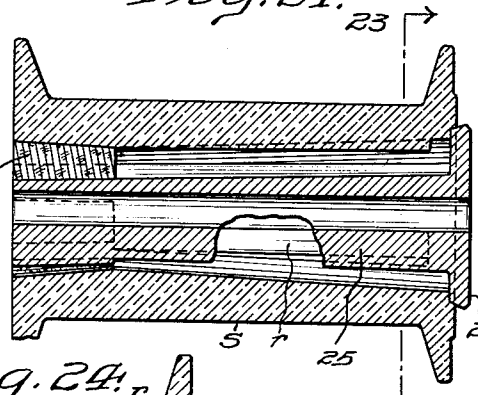


Fig. 23.

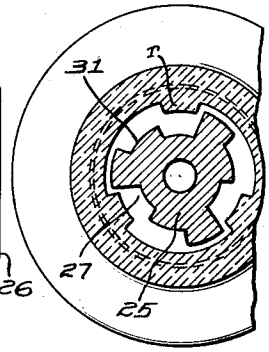


Fig. 24.

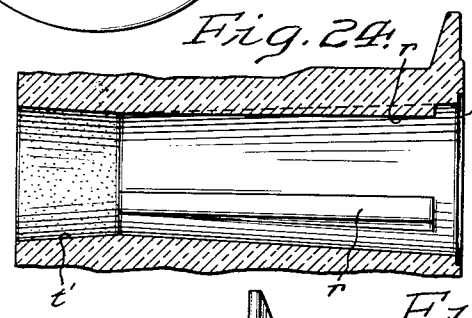


Fig. 25.

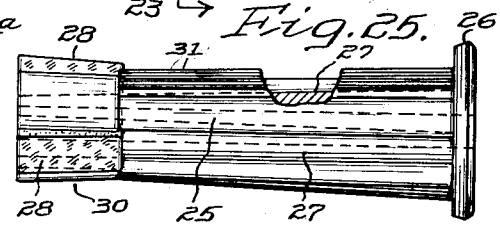


Fig. 26.

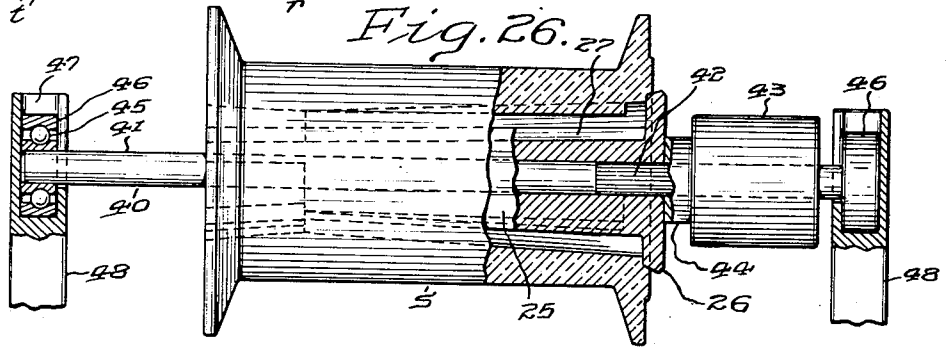
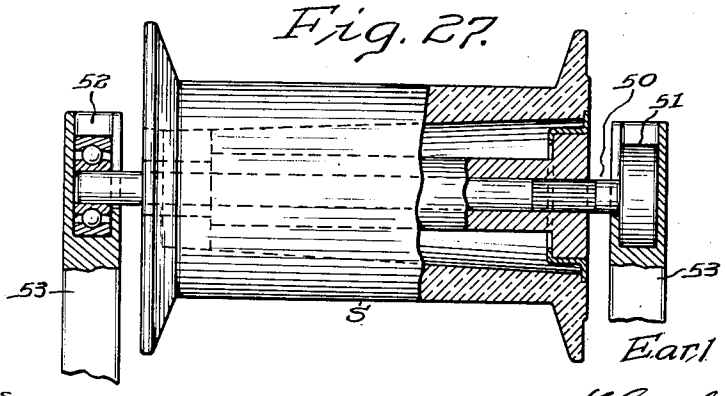


Fig. 27.



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Patented Nov. 7, 1933

1,934,167

UNITED STATES PATENT OFFICE

1,934,167

CORE FOR TEXTILE MACHINERY SPOOLS

Earl G. Crooks, Elmira, N. Y., assignor to Chemung Engineering Corporation, Elmira, N. Y., a corporation of New York

Application October 2, 1931. Serial No. 566,391

9 Claims. (Cl. 242—118)

My invention relates to the cores upon which spools employed in the textile industry for holding thread are operatively supported, cores constructed in accordance therewith being particularly adapted for use with spools of the character of those disclosed in a pending application for U. S. Letters Patent, Serial 531,442, filed April 20, 1931 by Earl G. Crooks and Charles H. Sayre, although they may be used to great advantage in connection with many other forms of spools heretofore employed in said industry.

The spools disclosed in said application in their preferred embodiment are formed of heat resistant glass by molding the material when in plastic condition and to facilitate their commercial manufacture in large volume and at low cost, are provided with an axial bore of relatively large diameter tapering from one end of the spool to the other, this bore, during the molding operation, being formed by a plunger of corresponding external diameter through the operation of which, in conjunction with the mold, a high degree of pressure is exerted on the plastic glass so as to cause the latter to properly conform to the mold cavity. The presence of this relatively large tapered axial bore thus serves, among other things, to structurally differentiate the said spools from those commonly in use and which comprise a cylindrical axial bore of relatively small diameter, and sometimes provided with a metallic bushing or liner, through which is inserted the spindle upon which the spool is supported when in use. Under practical conditions of manufacture, it has been found difficult to eliminate minor variations in diameter and taper in the bores of these molded glass spools, and the present invention is therefore designed, among other things, to provide a core which when assembled therewith is adapted to suitably support the spools irrespective of such variations, the core, in turn, providing satisfactory means for receiving the spindles on which the spools are disposed for certain manufacturing operations as will hereinafter more fully appear.

In addition to the principal object of the invention to which reference has just been made, other objects comprehended thereby are the provision of an improved form of spool core adapted to be interchangeably employed with different spools of the same length but having axial bores of slightly varying size and taper and which, when the spool is seated thereon, is effective to interlock with the spool so as to adequately and suitably support it for various operations in which it is used; which may be readily inserted into the spool and as readily withdrawn therefrom in a minimum of time; which may be conveniently and cheaply manufactured; and which permits the mounting of the core-supporting spindles in anti-friction bearings of the self-lubricated and sealed type, thus tending to eliminate thread breakage due to the spindles running in unlubricated bearings in accordance with the present practice yet without danger of the lubricant working out upon and contaminating the thread.

Still further objects of the invention are the provision of a core having the aforesaid characteristics which in certain of its forms is effective when assembled with the spool to prevent accidental or unintentional separation of the spool and core in an axial direction; which in other of its forms is effective to insure a positive rotation of the spool when the core is rotated, and in still other of its forms affords a combination of both of these features and which, therefore, is of universal application and in consequence may be utilized as standard in a given establishment, thus eliminating the present practice of using different styles of spools and types of cores or other supporting means therefor for different operations with resulting confusion, expense and annoyance.

A still further object of the invention is to provide a spool core from which the spools can be readily separated when it is desired to steam the thread disposed thereon or for other operations during which the presence of the core is either unnecessary or disadvantageous.

Additional objects, advantages and novel features of design, construction and arrangement comprehended by the invention are hereinafter more particularly pointed out or will be apparent to those skilled in the art from the following description of certain embodiments thereof as illustrated in the accompanying drawings in which I have shown in the first three figures a form of the invention adapted for use with a spool having a plain tapered axial bore and in the succeeding figures other forms of the invention adapted for use with spools having circumferentially spaced ribs within their corresponding bores.

More particularly in the said drawings Fig. 1 is a view, principally in central longitudinal section, showing the core and spool in assembled relation; Fig. 2 is a side elevation of the core removed from the spool, and Fig. 3 a transverse section thereof on line 3—3 in Fig. 2. Fig. 4 is

a central longitudinal section showing another form of core assembled with a spool having circumferentially spaced tapered ribs in its tapered bore, and Figs. 5 and 6 are respectively transverse sections on the lines 5—5 and 6—6 in said figure; Fig. 7 is a longitudinal section of the spool with the core removed; Fig. 8 is a side elevation of the core and Figs. 9 and 10 are respectively sections thereof on the lines 9—9 and 10—10 in Fig. 8. In Figs. 11 to 15 I have shown another form of core adapted for use with a similar spool, Fig. 11 being a longitudinal section of the core and spool operatively assembled; Figs. 12 and 13 transverse sections on lines 12—12 and 13—13 of Fig. 11; Fig. 14 a side elevation of the core removed from the spool and Fig. 15 a transverse section on line 15—15 in Fig. 14. In Figs. 16 to 20 inclusive, I have shown still another form of core adapted for use with a similar spool, these figures respectively corresponding to Figs. 11—15 already described. In Figs. 21 to 25 I have shown another form of core adapted for use with a spool of the general character of that shown in Fig. 7 but having its bore considerably reversely tapered at its smaller end in a direction opposite to that in which its major part is tapered, Fig. 21 being a longitudinal central section of the core and spool operatively assembled; Fig. 22 an end elevation of the parts shown in Fig. 21, and Fig. 23 a transverse section thereof on line 23—23 in said figure. Fig. 24 is a fragmentary view, generally corresponding to Fig. 7, but showing a spool of the form to which reference has just been made, while Fig. 25 is a side elevation of the core adapted for use therewith and partially broken away into section to better show internal construction. Fig. 26 is a view, partially in elevation and partially in fragmentary central section, designed to show a convenient and desirable manner of mounting the spool and core assembly of Fig. 25 on a driving spindle in turn mounted for revolution in antifriction bearings of the sealed self-lubricating type, while Fig. 27 shows the assembly of Fig. 1 mounted on a plain spindle in turn mounted in like bearings. Throughout the drawings, similar characters of reference are used to designate corresponding parts, and the various sectional views are taken in the directions indicated by arrows on the corresponding section lines.

The core illustrated in Figs. 1 to 3 inclusive, which, as stated, is adapted for use with a spool having a tapered axial bore devoid of ribs, comprises a cylindrical body 1 desirably formed of hard maple or other suitable wood, although other material may be used if preferred, having a cylindrical axial bore 2 of suitable diameter to receive the core supporting spindle and provided at one end with a preferably integral flange 3 adapted to snugly seat in a metallic cup 4 having at its open end a peripheral flange 5, the cup being desirably pressed or drawn from sheet metal and either frictionally retained on the flange or glued or otherwise secured in place thereon. If preferred and as will be apparent from an inspection of the cores shown in the succeeding figures, under certain conditions the cup may be omitted and a peripheral flange corresponding to the flange 5 formed directly on the flange 3 of the body of the core, but irrespective of which particular arrangement is adopted, the thickness and diameter of the peripheral flange is such that when the parts are assembled the flange will snugly seat in an annular recess *a* formed about the larger end of the bore *b* in the spool S. As will be apparent from Fig. 1, the body of the spool is, as shown, customarily cylindrical on its outer surface and at its extremities is provided with integral flanges *f* to assist in retaining the thread in place when it is wound on the body.

The body of the core at the end opposite to that at which the flange 3 is disposed and which for convenience will be termed its "upper" end, is reduced in diameter to receive an annular head 6 formed preferably of cork, although other resilient compressible materials having a high coefficient of friction such as rubber or compounds thereof may be utilized if desired. This head is glued or otherwise permanently fastened on the body and is of such diameter and has its outer surface so formed that it will conform to and be slightly compressed in the adjacent end of the bore 2 when the core is fully inserted in the spool. Thus, if the taper of the bore *b* is continued clear to the extremity of the spool, the head 6 is desirably correspondingly tapered, but in practice it is more usual to grind a short reverse taper, as at *t*, in the extremity of the bore after the spool has been molded to eliminate any fins or imperfections. Consequently, and as shown, when the bore is designed for a spool having such a reverse taper *t*, the head 6 will be correspondingly outwardly flared adjacent its outer end, the angularity of the reverse taper and of the corresponding flare in the head being somewhat exaggerated in the drawings since in practice the reverse taper is very slight. Under these conditions when the core is pushed longitudinally into the spool from the larger end of the bore *b* during the process of assembly, the outer end of the head will necessarily be considerably compressed as it passes over the shoulder formed at the junction of the oppositely tapered portions of the bore which, of course, represents its smallest diameter, but will immediately expand into contact with the bore wall after passing over this point, thus locking the core to the spool against accidental or unintentional withdrawal in reverse direction. Since the flange 5 snugly seats in the recess *a* (no difficulty being experienced in molding this recess exactly to size and concentric with the axis of the spool) and as the head 6 snugly adheres to the inner surface of the main and reversely tapered portions of the spool bore when the core is fully seated therein, the requisite concentricity of the spool and core is assured. By pressing on the end of the head and holding the spool, the parts may be easily separated, however, when desired and another spool of like character disposed upon the core even though the bores of the two spools may slightly vary in taper and/or diameter, the compressible and resilient head 6 readily accommodating itself to such variations. A core of this character is therefore particularly adapted for use under conditions in which positive rotational drive from the core to the spool is not required although generally, unless the bore of the spool is considerably larger than standard, the frictional engagement between the head and the wall of the bore is sufficient to insure the spool turning unitarily with the core when the latter is driven, while as a relatively considerable pressure is necessary to force the core out of the spool in reverse direction for all conditions of use to which the spools are customarily subjected, the spool and core may be considered as positively operatively locked against accidental or unintentional axial

separation after assembly. Moreover, the fact that the spool and core can be so readily separated is of great advantage in many of the operations incident to the manufacture of textiles as, for example, when it is desired to steam the thread carried by the spool since it avoids the necessity of subjecting the core to the action of the steam.

The several forms of the invention now to be described are designed to afford a positive rotational drive from the core to the spool and are adapted for use, as hitherto stated, with spools of the general character of that shown in Fig. 7 having a plurality of circumferentially spaced ribs or splines *r* in their axial bores, these ribs being of greatest thickness adjacent that end of the spool comprising the recess *a* and merging into the bore wall adjacent the upper end of the spool. Customarily, three of these ribs are provided and spaced equidistantly about the bore but a greater or less number may be utilized if preferred and the cores suitably correspondingly modified.

Referring now more particularly to Figs. 4 to 10, inclusive, the core shown therein comprises the usual body 1 of wood or other suitable material having a central bore 2, end flange 3' and peripheral flange 5' generally corresponding to those already described; however, I have shown this core as devoid of the metal cup 4, the flange 3' and peripheral flange 5' being formed integrally with the body and thus of the same material of which it is made. Adjacent its extremity opposite that at which said flanges are disposed, a head 10 is positioned; this head which is formed of cork or other suitable material similarly to the head 6, substantially conforms in transverse section to an equilateral triangle with rounded corners as best shown in Fig. 9, and is preferably of such size as to fit snugly in the small end of the bore of the spool when the core is assembled therein and be somewhat compressed thereby. The head is thus operative to center the adjacent end of the spool on the core and because of its resilient nature readily conforms to any slight irregularity in the bore, the extremity of which may be ground with a slight reverse taper as in the case of the spool shown in Fig. 1 or may be devoid thereof. Adjacent the flange 3 the core is provided with means designed to engage the ribs *r* and positively constrain the spool to turn with the core when the latter is rotated, said means comprising an annular bushing 12 of cork or other suitable resilient compressible material glued or otherwise rigidly secured to the core. The outer surface of the bushing is preferably tapered in correspondence with the taper of the bore of the spool and is of suitable diameter to fit snugly therein when the core is assembled with the latter but is cut away at circumferentially spaced intervals, thus providing alternating grooves 13 and lands 14, the former being adapted to receive the ends of the ribs *r* when the parts are assembled. Thus, when the grooves are aligned with the ribs, the core may be readily inserted in the spool until the flange 5' seats in the recess *a*, thus centering that end of the spool on the core while the other end is properly centered by the head 10; thereafter, a slight relative rotation between the core and the spool is effective to cause the ribs to contact the lands 14 so as to insure unitary rotation of the spool and core when the latter is driven, while the frictional engagement of the head 10 and lands 14 with the wall of the bore *b* serves to operatively retain the core in the spool until it is forcibly pressed out in the opposite direction from that in which it was inserted unless the dimensions of the bore are materially greater than standard.

The core shown in Figs. 11 to 15, inclusive, is similar to the core just described except that it embodies a bushing 12*a* preferably tapered to correspond to the taper of the ribs, approximating in cross section an equilateral triangle having symmetrically curved sides 15, and of such size as to permit the core to be inserted into the spool when the points 16 of the bushing are approximately longitudinally aligned with the centers of the spaces between the ribs *r*; thereafter, when the core is fully seated in the spool, a slight relative rotation between it and the spool is operative to engage the ribs with the surfaces 15 as best shown in Fig. 13 so as to insure positive rotation of the spool and core rotating as a unit when the latter is driven.

In Figs. 16 to 20, inclusive, is shown, a core having still another form of bushing 12*b* which, as best shown in Fig. 20, is provided with a plurality of spiral cam surfaces 20 corresponding in number to the ribs *r*, preferably tapered to correspond therewith and terminating at their outer ends in radial planes 21, the dimensions of the bushing being such that the core can be readily inserted in the spool when the ribs are approximately longitudinally aligned with the inner end of the cam surfaces; thereafter, when the core is fully seated in the spool, a slight rotation of the core relatively to the spool in the direction of the arrow in Fig. 18 is effective to bring the cam surfaces into engagement with the adjacent faces of the ribs so as to insure unitary and positive rotation of the parts when the core is subsequently revolved in the same direction. It will be noted, however, that in this form of the invention the rotative locking connection between the core and spool can be effected by turning the core relatively to the spool in one direction only, while in the two forms just previously described, it may be effected by turning the core relatively to the spool in either direction after it is seated therein.

It will thus be apparent that the cores shown in Figs. 8, 14 and 19 are of particular advantage when a positive drive is to be communicated from the core to the spool, while as the frictional engagement of the core head and/or bushing with the bore of the spool when of standard or substantially standard diameter strongly tends to prevent accidental or unintentional axial separation of the parts, it is usually sufficient to operatively retain the core within the spool under ordinary conditions of use.

That form of the invention now to be described, however, which is illustrated in Figs. 21 to 25 inclusive, is not only adapted to provide an operatively positive lock against axial separation of the core and spool but to positively insure unitary rotation of the parts when the core is driven, and is thus eminently suitable for use as standard equipment in a given plant, since the cores may be used interchangeably in connection with the spools in any and all of the operations incident to the employment of the latter, irrespective of whether they are such as to require the prevention of axial separation of the spool and core or a positive drive from the core to the spool, or both.

The core in this form of the invention, which is particularly adapted for use with a spool of the type of that shown in Fig. 24 having ribs *r* and a considerably reversed taper *t'* in its upper end, comprises a body 25 having an integral end

flange 26 which, as shown, is of slightly different configuration than the end flanges heretofore described but which, like the latter, is adapted to seat at its inner end in the recess *a* in the spool and thus center that end of the spool with respect to the core; if desired, however, flanges similar to those shown in the preceding figures may be utilized if preferred. The body of the core is tapered in general conformity with the taper of the major portion of the bore and is provided with a plurality of circumferentially spaced, longitudinally extending grooves 27 corresponding in number to the number of ribs *r* in the spool in which it is to be used and extending from the flange 26 toward the opposite end of the body. In these grooves adjacent said end are seated blocks 28 of cork or other similar material, which are either glued or otherwise rigidly secured in place, and which together form a head generally designated as 30. The outer surfaces of these blocks are reversely tapered in correspondence to the taper *t'* of the bore and, owing to their resilient nature, can be compressed sufficiently when the core is being inserted into the spool to pass over the point of least diameter of the bore, which of course lies at the juncture of the taper *t'* and the major portion of the bore, after which the blocks expand and tightly engage the reversely tapered surface *t'* so as to operatively lock the core in the spool against accidental or unintentional axial displacement. Each of the lands 31 between the grooves 27 is made high enough adjacent one longitudinal edge for a suitable distance from the flange 26 to engage the sides of the ribs *r* but is sufficiently reduced in height adjacent the opposite longitudinal edge to clear the ribs when the core is being inserted into the spool, so that by aligning those portions of the lands which are of reduced height with the ribs *r* and the blocks 28 with the recesses between them, the core may be readily pushed into the spool, after which a slight relative rotation of the core is effective to bring the high portions of the lands into engagement with the sides of the ribs and thus insure a positive drive being communicated to the spool when the core is rotated.

It has heretofore been the practice in certain operations in the textile industry to mount the thread carrying spools on spindles, supported for revolution in plain bearings which are permitted to run without lubrication because of the danger of the lubricant working out on the thread carried by the spool and contaminating it. This practice is objectionable, however, in that the power required to revolve the spools is relatively considerable owing to the unlubricated condition of the bearings and because it enhances the liability of thread breakage through variation in thread tension and the tendency of the spindles to jump instead of running true, while the wear on the parts is considerable with consequent necessity for frequent replacement.

These difficulties are readily overcome, however, with the cores of my invention which are adapted to be operatively supported on spindles designed to be positively driven, as when thread is to be wound on the spool carried by the bore, or else to act merely as trunnions for the core and spool, as when the thread is to be drawn off the latter, and these spindles may be arranged to revolve in anti-friction, self-lubricating sealed bearings. Thus, as shown in Fig. 26, the core may be supported on a driving spindle, generally designated as 40, comprising a shaft 41 extending through the bore 2 in the core and having a knurled section 42 adapted to prevent relative rotation between the shaft and the core, the shaft being provided with a drive pulley 43 and, if desired, an annular spacer 44 disposed between the end of the spool and the pulley. The ends of the shaft are mounted in anti-friction bearings 45, ball bearings being shown by way of illustration, sealed in cases 46 containing a suitable lubricant and which are adapted to removably seat in sockets 47 in supporting members 48 forming part of the machine in which the spool is to be used. The particular design of the bearings and of the cases in which they are sealed with the lubricant is, of course, a matter of choice as long as the parts are small enough to pass through the bore of the spool and thus permit it to be placed on or removed from the core which, together with the shaft and bearings, forms a single operative unit. Thus, after the spool is assembled on the core, the bearings may be placed in the sockets in the supporting members and the spool then driven from the pulley 43, while the whole assembly can be readily removed from the sockets and the spool detached from the spindle and core whenever required. When a positive drive of the spool is required, cores of the types shown in Figs. 8, 14, 19 and 25 will preferably be employed, but where such a requirement is not essential, a core such as shown in Fig. 2 may be utilized and mounted on plain spindles 50 carrying at their ends similar self-lubricating, sealed anti-friction bearings 51 adapted to removably seat in sockets 52 in supports 53, the spindle in this instance merely forming a trunnion on which the spools can be rotated as by pulling off the thread which is wound thereon.

In either case, as the bearings at the ends of the spindle can be made self-lubricating and oil-tight, or substantially so, yet without interfering with ability to assemble the spool on the core or remove it therefrom, it results that the friction incident to the revolution of the spindles is minimized and the life of the parts correspondingly prolonged, the liability of thread breakage is reduced, and the spindles run much more smoothly and require less power to drive them than the spindles mounted in plain, unlubricated bearings in accordance with the customary practice.

While the cores of my invention are particularly adapted for use with spools of the character of those forming the subject of said application Serial No. 531,422, they may be used with equal facility with other classes of spools if desired, and it will be apparent that, irrespective of the particular nature of the spools themselves, the cores are operative, among other things, to adequately and satisfactorily support them in properly centered relation in the various operations incident to the uses of such spools in the textile industry; that the spools can be assembled on and removed from the cores very easily and in a minimum of time, and finally, as just pointed out, that the use of the cores permits the employment of improved bearings for the core spindles whereby the power consumption of the plant is reduced and better operating conditions secured.

While I have herein illustrated and described certain forms of my invention with considerable particularity, I do not thereby desire or intend to specifically limit or confine myself to any specific embodiments of the principles thereof or to any precise details of design, construction

and arrangement of the various parts so long as the same are within the spirit and scope of the invention as defined in the appended claims.

Having thus described my invention, I claim and desire to protect by Letters Patent of the United States:

1. A core for a textile machinery spool comprising a wooden body adapted to extend substantially axially in the bore of the spool, means at one end of the body adapted to maintain the core concentric with the adjacent end of the spool, and a head at the opposite end of the body formed of cork and operative to frictionally engage the wall of said bore when the spool is assembled on the core.

2. A core for a textile machinery spool having a bore the major portion of which is tapered in one direction and the extremity thereof tapered in the opposite direction, said core comprising a body adapted to extend longitudinally in said bore, a flange at one end of the body adapted to seat in a corresponding recess in the end of the spool surrounding its bore, and a head of resilient material at the opposite end of the body shaped to conform to said oppositely tapered portion of the bore adjacent the junction of said tapered portions and adapted to frictionally engage the interior of the bore when the core is operatively assembled with the spool.

3. A core for a textile machinery spool having a bore the major portion of which is tapered in one direction and the extremity thereof tapered in the opposite direction, said core comprising a wooden body adapted to extend longitudinally in said bore, a flange at one end of the body, a metallic cup disposed over said flange and provided with a peripheral flange adapted to seat in a corresponding recess in the end of the spool surrounding its bore to thereby center the core with respect to the adjacent end of the spool, and a head at the opposite end of the body, formed of cork, shaped to conform to said tapered extremity of the bore adjacent the junction of said oppositely tapered portions thereof, and adapted to frictionally engage the interior of the bore when the core is operatively assembled in the spool.

4. A core for a textile machinery spool having a tapered axial bore and circumferentially spaced, longitudinally extending ribs projecting thereinto, said core comprising a body adapted to extend substantially axially in the bore, and having at one end a head of resilient material and adjacent the other end means adapted to be brought into engagement with said ribs by relative revolution of the core and spool after the core is fully inserted into the bore thereof.

5. A core for a textile machinery spool having a tapered axial bore and circumferentially spaced, longitudinally extending ribs projecting thereinto, said core comprising a body adapted to extend substantially axially in the bore, means at one end of the body adapted for cooperation with the spool to center the adjacent end of the core relatively thereto, a head of resilient material at the opposite end of the body, and means between the flange and the head adapted to be brought into engagement with said ribs by relative revolution of the core and spool after the core is fully inserted into the bore thereof.

6. A core for a textile machinery spool having a tapered axial bore and circumferentially spaced, longitudinally extending ribs projecting thereinto, said core comprising a body adapted to extend substantially axially in the bore, a flange at one end of the body adapted to seat in a corresponding recess in the end of the spool and surrounding the bore, a head of resilient material at the opposite end of the body, and a bushing of resilient material surrounding the body between the flange and the head and so shaped on its outer surface as to clear said ribs when the core is inserted longitudinally into the spool when the parts are substantially coaxial and in a predetermined position of relative rotational alignment and to be brought into engagement with said ribs by relative rotation of the spool and core after the latter is fully inserted into the former.

7. A core for a textile spool having an axial bore longitudinally outwardly tapered in different directions adjacent its opposite ends, said core comprising a body adapted to extend substantially coaxially with the bore, means at one end of the body adapted to seat in a recess in the end of the spool surrounding the bore, and a head at the opposite end of the body comprising a plurality of circumferentially spaced blocks of resilient material projecting outwardly from the body, said blocks being operative by frictional engagement with the adjacent outwardly tapered wall of the bore to resist relative rotation and longitudinal movement between the core and the spool when the former is assembled in the latter.

8. A core for a textile spool having an axial bore longitudinally tapered in different directions adjacent its opposite ends and provided with circumferentially spaced, inwardly directed ribs, said core comprising a body adapted to extend substantially coaxially with the bore, means at one end of the body adapted to seat in a recess in the end of the spool surrounding the bore, and a head at the opposite end of the body comprising a plurality of circumferentially spaced blocks of resilient material having their outer surfaces shaped in correspondence with that portion of the bore in which they are designed to seat projecting outwardly from the body, whereby said core may be inserted into the bore of the spool when said blocks are out of longitudinal alignment with the ribs, said blocks being operative by frictional engagement with the adjacent wall of the bore to resist relative rotation and longitudinal movement between the core and the spool when the former is assembled in the latter.

9. A core for a textile machinery spool having a longitudinally tapered bore, said core comprising a wooden body adapted to extend longitudinally in the bore, a flange at one end of the body operative to seat in a recess in the end of the spool to center the adjacent end of the core with respect thereto, and a head at the opposite end of the body formed of cork, exteriorly tapered in correspondence with the taper of the bore, and adapted to frictionally engage the interior thereof when the core is assembled in the spool.

EARL G. CROOKS.