

H. D. COLMAN.
SUPPORT FOR YARN CARRIERS.
APPLICATION FILED JAN. 26, 1916.

1,329,504.

Patented Feb. 3, 1920.

FIG. 1.

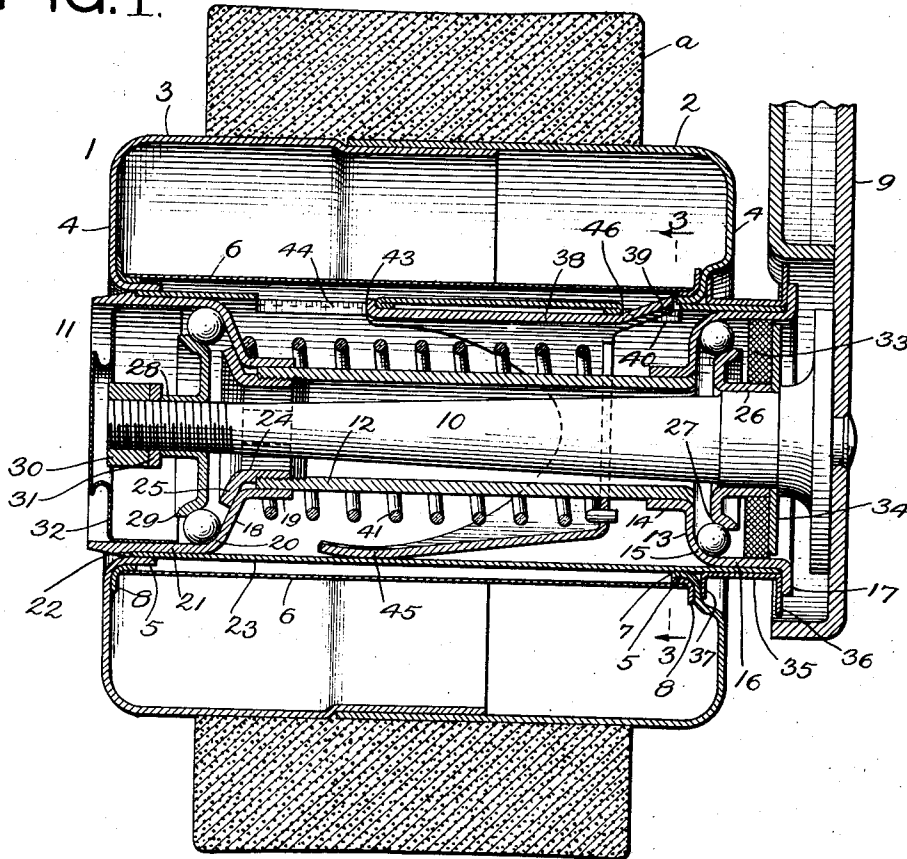


FIG. 2.

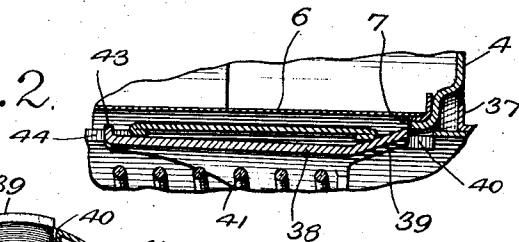
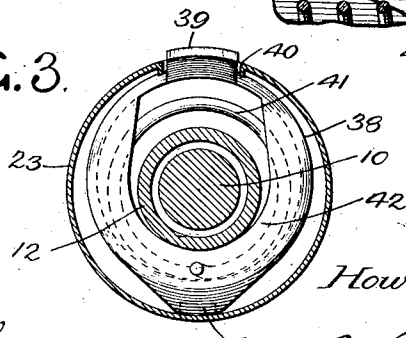


FIG. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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SUPPORT FOR YARN-CARRIERS.

1,329,504.

Specification of Letters Patent.

Patented Feb. 3, 1920.

Application filed January 26, 1916. Serial No. 74,290.

To all whom it may concern:

Be it known that I, HOWARD D. COLMAN, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Supports for Yarn-Carriers, of which the following is a specification.

This invention relates to devices for rotatably supporting yarn-carriers. While in its broadest aspects the invention is applicable to winding machines of various classes, it is herein disclosed as embodied in a construction particularly adapted for use in winders of the type illustrated and described in my copending application Serial No. 628,474, filed May 20, 1911, now Patent 1,175,710. As to the broad subject-matter common to the present application and said application No. 628,474, the present case is a continuation or division of the earlier application. Certain subject-matter is also disclosed in application Serial No. 809,797, filed Dec. 31, 1913, now Patent No. 1,268,684. In the accompanying drawings, Figure 1 is a longitudinal central section through a support embodying the features of my invention, a yarn carrier being shown as being locked in operative position upon said support. Fig. 2 is a fragmental sectional view illustrating the operation of withdrawing and unlocking the yarn-carrier. Fig. 3 is a transverse sectional view taken in the plane of dotted line 3—3 of Fig. 1.

In the drawings, *a* indicates a body of yarn wound upon a yarn-carrier 1. While the present invention is adapted to be used in connection with yarn carriers of various forms, I have herein shown a cylindrical tubular yarn-carrier formed of two cylindrical sheet-metal sections 2 and 3 rigidly secured together, each of said sections having an annular end wall 4. In each of the end walls 4 is a central opening surrounded by an inverted flange 5. Between these flanges extends a sleeve 6. The inner end of one of the flanges 5 constitutes an annular locking shoulder 7 adapted for engagement by a latch or locking finger to be hereinafter described. In order that there shall be sufficient clearance between said latch and the sleeve 6, spacing rings 8 are interposed between the ends of the sleeve and the flanges 5.

The support upon which the yarn carrier

1 is rotatably mounted may itself be supported in any suitable manner. Herein I have shown the support as mounted upon an arm 9 corresponding functionally to one of the arms 8 shown in said application Serial No. 628,474. Upon a pivot or spindle 10 fixed to the arm 9 is rotatably mounted a hub 11. If desired, ball-bearings may be provided between the spindle and the hub, as herein shown. In the present embodiment the hub comprises a central sleeve 12 upon one end of which is mounted an annular member 13 having a flange 14 which encircles the end of the sleeve 12. The end of the sleeve is expanded to hold the member 13 against longitudinal movement in one direction with relation to the sleeve 12. The member 13 provides a ball race 15. Said member has a cylindrical portion 16 and an annular stop flange 17.

Upon the other end of the sleeve 12 is mounted a member 18 having an annular flange 19 which surrounds the sleeve. The member 18 comprises a ball race 20, and a cylindrical portion 21 having an annular shoulder 22. A sleeve 23 is confined between the stop flange 17 and the shoulder 22, the parts 12, 13, 18 and 23 being rigidly secured together by means of a tubular plug 24 screwed into the end of the sleeve 12, said plug having an annular outwardly extending flange 25 that bears against the member 18. The interior of the plug 24 may be of polygonal form to receive a wrench.

A sleeve 26 fits upon the inner portion of the spindle 10 and is provided with a cone 27. A series of balls is located between the ball race 15 and the cone 27. Upon the outer portion of the spindle 10 is screwed a sleeve 28 carrying a cone 29. A series of balls is interposed between the ball race 20 and the cone 29. The two ball-bearings just described are locked in adjusted position by means of a nut 30. 31 is a washer between the sleeve 28 and said nut.

Lubricant is retained within the ball-bearings, and dust excluded, by suitable means. Herein is shown a sheet-metal closure 32 fitting within the outer end of the cylindrical portion 21. At the inner end of the hub is a disk 33 of suitable material, such as felt, said disk lying at the inner side of a disk 34 confined upon the spindle 10.

It sometimes happens that instead of

being properly wound upon the yarn-carrier, more or less yarn will be wound upon the yarn-carrier support adjacent to the arm 9. To prevent any such yarn from getting into the space between the hub 11 and the arm 9, or between the hub and the yarn-carrier, I provide a spool 35 comprising end flanges 36 and 37, said spool being fixed upon the sleeve 23 adjacent to the stop flange 17. As shown in Fig. 1, the arm 9 and the adjacent end of the yarn-carrier 1 are recessed to receive the spool flanges 36 and 37, respectively, so as to insure that any strand drawn between the yarn-carrier and the arm 9 shall be wound upon the spool 35.

The yarn-carrier 1 is adapted to fit upon the sleeve 23. The spool flange 37 constitutes a stop for the yarn-carrier. The yarn-carrier is releasably locked against withdrawal from the hub 11 by a device comprising a locking slide 38 reciprocable longitudinally of, and free to tilt slightly in, the hub.

The slide 38 has a latch finger 39 which projects through an opening 40 in the hub and is adapted to lie adjacent to the annular locking shoulder 7 of the yarn-carrier 1. The slide 38 is normally held in the position shown in Fig. 1 by means of a coiled spring 41 which bears at one end against the member 18 and at its other end against the portion 42 of the slide. A lug 43 on the slide projects through an opening 44 in the hub and serves to limit the action of the spring 41 through contact of the lug 43 with the end wall of the opening.

At the side of the slide 38 opposite to the latch finger 39 is a portion 45 which slides in contact with the inner surface of the sleeve 23.

In operation, the operative slips a yarn-carrier 1 upon the hub 11. The latch finger 39 is depressed by the inner flange 5 as the yarn-carrier is pushed against the stop flange 37, and springs up into locking position as soon as said flange 5 has passed it.

When the formation of a yarn mass on the yarn-carrier 1 has been completed, the operative takes hold of the yarn mass and draws it longitudinally of the hub 11, the latch finger 39 being forced longitudinally of the hub by the locking shoulder 7 against the pressure of the spring 41. The finger 39 is inclined so that when it is forced against the end wall 46 of the opening 40, said finger is forced toward the axis of the hub, the slide 38 tilting to permit of such movement of the latch finger.

I claim as my invention:

1. A yarn-carrier support having, in combination, a hub having an opening therein, a slide in the hub having a latch finger projecting through the opening, a stop lug on the slide projecting through an opening in

the hub, and a spring arranged to act upon the slide to yieldingly hold the latch finger in operative position, said finger having an inclined surface arranged to coact with a portion of the hub to cause withdrawal of the latch finger when the slide is moved against the pressure of the spring.

2. A yarn-carrier support having, in combination, a hub having an opening therein, a slide in the hub having a latch finger projecting through the opening, a stop member on the hub arranged to coact with the latch finger to lock a yarn-carrier on the hub, and a spring arranged to act upon the slide to yieldingly hold the latch finger in operative position, said finger having an inclined surface arranged to coact with a portion of the hub to cause withdrawal of the latch finger when the slide is moved against the pressure of the spring.

3. A yarn-carrier support having, in combination, a hub, a slide arranged for sliding and tilting movement within the hub, a latch finger on the slide projecting through an opening in the hub, and a spring acting on the slide to yieldingly hold the latch finger in operative position, said finger having an inclined surface arranged to coact with a portion of the hub to cause tilting of the slide when the finger is forced against said hub portion.

4. A yarn-carrier support having, in combination, a hub, a stop member on the hub, a slide in the hub having a latch finger arranged to coact with said stop member to lock a yarn-carrier on the hub, and a spring acting on the slide to yieldingly hold the latch finger in operative position.

5. The combination of a supporting member, a pivot rigidly attached to the member, a hub rotatably mounted on the pivot, a spool on the hub adjacent to the supporting member, the latter being recessed to receive a portion of the spool, and a yarn container mounted on the hub, one end of said container being recessed to receive a portion of said spool.

6. The combination of a supporting member, a pivot attached to the supporting member, a hub rotatably mounted on the pivot, a tubular yarn container mounted upon the periphery of the hub, and means for locking the yarn container on the hub, said means comprising an annular internal shoulder on the yarn container and a latch finger on the hub adapted to engage any portion of said shoulder.

7. A yarn-carrier support having, in combination, a supporting arm, a pivot attached to the arm, a hub on the pivot, and a yarn-receiving spool on the end of the hub adjacent to the arm, said hub being adapted to support a tubular yarn carrier in alinement with said spool, the arm being recessed to receive a part only of the spool.

8. In a winder, a hub adapted to receive a tubular yarn-container; a slidably mounted member in said hub; a locking finger on said member projecting through an opening in said hub; and a spring tending to move said member to hold said finger in locking relation to the container, one end wall of said opening being adapted to move the finger inwardly when said member is moved against the action of the spring.

9. In a winder, a hub adapted to receive a tubular yarn-container, said hub having an external projection; a slidably mounted member in said hub; a locking finger on said member; a spring tending to move said member to hold said finger in locking relation to an internal annular shoulder on the container, thereby confining said container between said external projection and said finger; and a part on the hub adapted to remove the finger from the container when said member is moved against the action of the spring.

10. In a winder, a hub adapted to receive a tubular yarn-container; a slidably mounted member in said hub, a locking finger on

said member; a spring tending to move said member to hold said finger in locking relation to the container, and a part on the hub adapted to remove the finger from the container when said member is moved against the action of the spring.

11. A yarn-carrier support having, in combination, a hub adapted for the reception of a tubular yarn-container, a pivot on which said hub is mounted; and an arm to which the pivot is attached, said hub having at the end adjacent said arm a flanged annular surface for the reception of yarn, said arm having a flange that overlies the flange on said annular surface.

12. The combination of a supporting arm, a horizontal pivot rigidly fixed at one end to the arm, a hub freely rotatable on the pivot, a tubular receiving yarn-receiver fitting over and supported by the hub, and a flanged yarn-receiving spool attached to the end of the hub and disposed between the yarn-carrier and the arm.

In testimony whereof, I hereunto set my hand.

HOWARD D. COLMAN.