Aug. 22, 1939. M. B. PENMAN 2,170,764

YARN SWIFT

Filed April 5, 1937

Fig. 1.

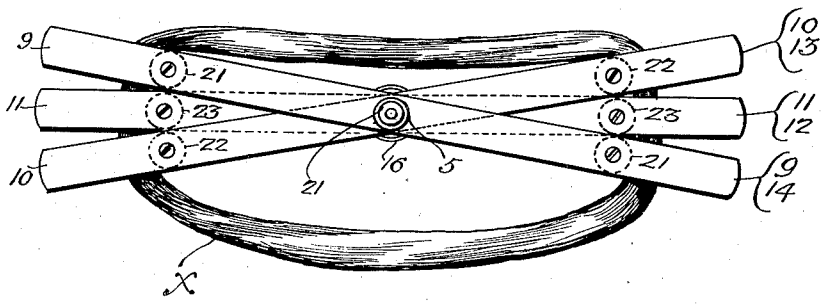


Fig. 3.

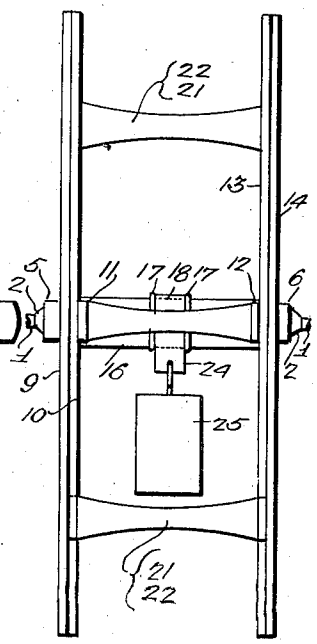


Fig. 2.

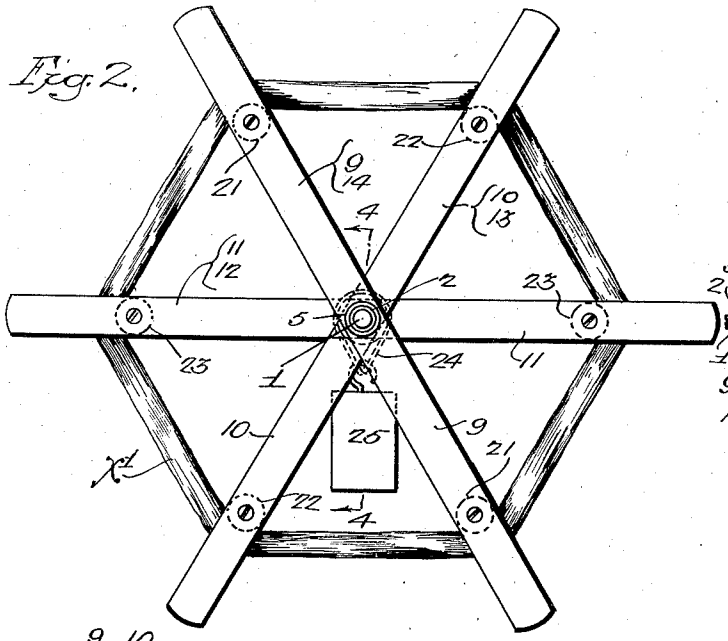
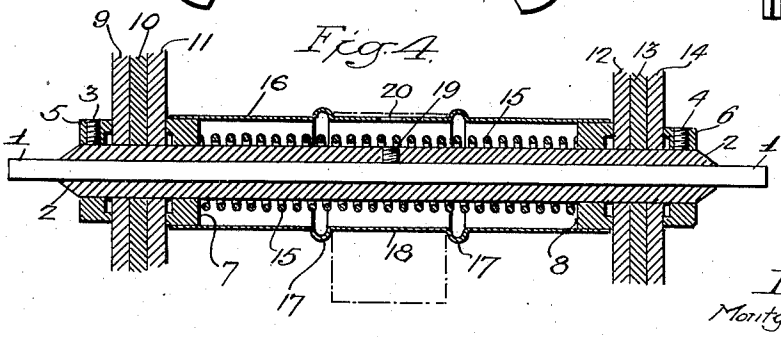


Fig. 4.



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YARN SWIFT

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8 Claims. (Cl. 242—111)

This invention relates to yarn holders or swifts, on which a skein of yarn is placed while in a loose condition, with the swift in a collapsed state, and wherein the swift is subsequently operated or expanded to stretch or place the yarn under tension, in order that the yarn may be readily rewound from the skein onto spools, etc., or into other suitable packages.

The principal object of the present invention is to provide a swift of novel and improved construction, whereby the yarn-spreading arms at both sides of the swift will be held in the positions to which they may be moved by the operator, by equalized pressure automatically applied simultaneously to the two sets of arms at the opposite sides respectively of the swift, by which breaking of the arms commonly caused by the arms on one or the other side of the swift locking or jamming is eliminated.

Other features of the invention together with the construction and operation of the swift will be fully disclosed hereinafter, reference being had to the accompanying drawing, of which:

Fig. 1 is a side view of the swift in contracted or collapsed form;

Fig. 2 is a similar view showing the swift expanded;

Fig. 3 is an edge view of the expanded swift; and

Fig. 4 is an enlarged longitudinal sectional view of the hub structure of the swift as taken on the line 4—4, Fig. 2.

In the present instance, the swift comprises a spindle 1 which is removably mounted in a hub sleeve 2. Secured to the hub sleeve 2, by set screws 3 and 4, are outside collars 5 and 6 respectively. Spaced axially from each other and from the collars 5 and 6 are inside collars 7 and 8 respectively. Between the collars 5 and 7 on one end of the hub sleeve 2 are radial arms 9, 10 and 11. Between the collars 6 and 8 on the opposite end of the hub sleeve 2 are radial arms 12, 13 and 14. Encircling the hub sleeve 2, between the collars 7 and 8 and exerting outward pressure equally against the collars 7 and 8, is a spring 15 which causes the arms 12, 13 and 14 at one side of the swift and the arms 9, 10 and 11 at the opposite side of the swift to bear against each other and against the collars 5 and 7 and 6 and 8 with relatively high frictional contact, for purposes hereinafter noted. Outside the spring 15 and collars 7 and 8 is a shell or hub casing 16 which is provided with annular ribs 17, 17, providing a braking surface 18 therebetween.

The spindle 1 is removably secured in the hub sleeve 2 by a set screw 19 inserted through an opening 20 formed in the shell 16. In practice, when the protruding ends of the spindle 1 become worn the old one may be readily replaced by a new one upon releasing the set screw 19 through the opening 20 in the hub casing 16.

Spaced inwardly from the outer ends of the radial arms 9, 10, 11, 12, 13 and 14, and connecting the arm 9 with the arm 14, the arm 10 with the arm 13, and the arm 11 with the arm 12 are rungs 21—21, 22—22 and 23—23.

In use, the arms 9—14, 10—13 and 11—12 are drawn together as indicated in Fig. 1. A loose skein of yarn, indicated at x, is placed on the device between the side arms with the skein bearing against the rungs, as indicated. The arms 9—14 and 10—13 are then spread apart to the position shown in Fig. 2, which tightens the skein of yarn on the device as indicated at x^1 in Fig. 2. This places the yarn of the skein under tension and holds it firmly so that it may be readily unwound from the skein and wound into a yarn package for subsequent use or treatment.

The device is then set in a suitable frame with the trunnion-like ends of the spindle 1 setting in suitable notches or bearings formed in a suitable support adjacent the winding machine.

Usually a strap 24 with a weight 25 attached to the opposite ends thereof when formed into a loop around the casing sleeve 16 is employed, with the weight hanging inside of the stretched skein. This produces a braking effect on the swift to prevent overrunning thereof during the unwinding of the yarn therefrom.

If desired, the hub casing 16 may be keyed or splined to one or both of the collars 7 or 8 and the collars may be splined to the hub sleeve 2 to prevent relative rotation between these elements. This, however, has not been found necessary in practice.

By making the arms 9 to 14 and the rungs 21, 22 and 23 of a material known as "Micarta" the swift is substantially indestructible and non-susceptible to variations in weather conditions as is the case.

I claim:

1. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, and means for effecting equalized frictional contact between the plurali-

ties of arms at both ends of said hub element simultaneously.

2. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, and means carried by said hub element intermediate said pluralities of arms for effecting equalized frictional contact between the pluralities of arms at both ends of said hub element simultaneously.

3. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, and a spring extending axially of said swift between said pluralities of arms and exerting force in opposite directions against said pluralities of arms for effecting equalized frictional contact between the pluralities of arms at both ends of said hub element simultaneously.

4. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, a pair of abutments on said hub element outside said pluralities of arms respectively, a pair of abutments on said hub element intermediate said pluralities of arms, means for securing one of said pairs of abutments to said hub element, and a spring extending between the other pair of abutments and exerting force thereon in opposite directions simultaneously for effecting frictional engagement between the arms of each plurality and the abutments lying at opposite sides respectively thereof at both ends of said hub element simultaneously.

5. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, a pair of collars secured to said hub element outside said pluralities of arms respectively, a pair of collars loosely slidably mounted on said hub element inside said pluralities of arms respectively, and a spring encircling said hub element between and exerting equal pressure in opposite directions respectively against said inside collars.

6. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, a pair of collars secured to said hub element outside said pluralities of arms respectively, a pair of collars loosely slidably mounted on said hub element inside said pluralities of arms respectively, a spring encircling said hub element between and exerting equal pressure in opposite directions respectively against said inside collars, and a hub casing encircling said inside collars, said spring and said hub element intermediate said arm pluralities.

7. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, a pair of collars secured to said hub element outside said pluralities of arms respectively, a pair of collars loosely slidably mounted on said hub element inside said pluralities of arms respectively, a spring encircling said hub element between and exerting equal pressure in opposite directions respectively against said inside collars, and a readily removable spindle extending axially through and projecting beyond the opposite ends respectively of said hub element.

8. A yarn swift comprising a continuous axially extending tubular hub element adapted to receive a swift supporting spindle, a plurality of independently relatively movable arms pivotally mounted on and adjacent each of the opposite ends of said hub element, a pair of collars secured to said hub element outside said pluralities of arms respectively, a pair of collars loosely slidably mounted on said hub element inside said pluralities of arms respectively, a spring encircling said hub element between and exerting equal pressure in opposite directions respectively against said inside collars, a readily removable spindle extending axially through and projecting beyond the opposite ends respectively of said hub element, a hub casing encircling said inside collars, said spring and said hub element intermediate said arm pluralities, a set screw threaded into said hub element and engaging said spindle intermediate said arm pluralities, said casing having an opening therethrough affording access to said set screw.

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