July 20, 1948. A. J. STROZINSKI 2,445,542

BOBBIN HOLDER

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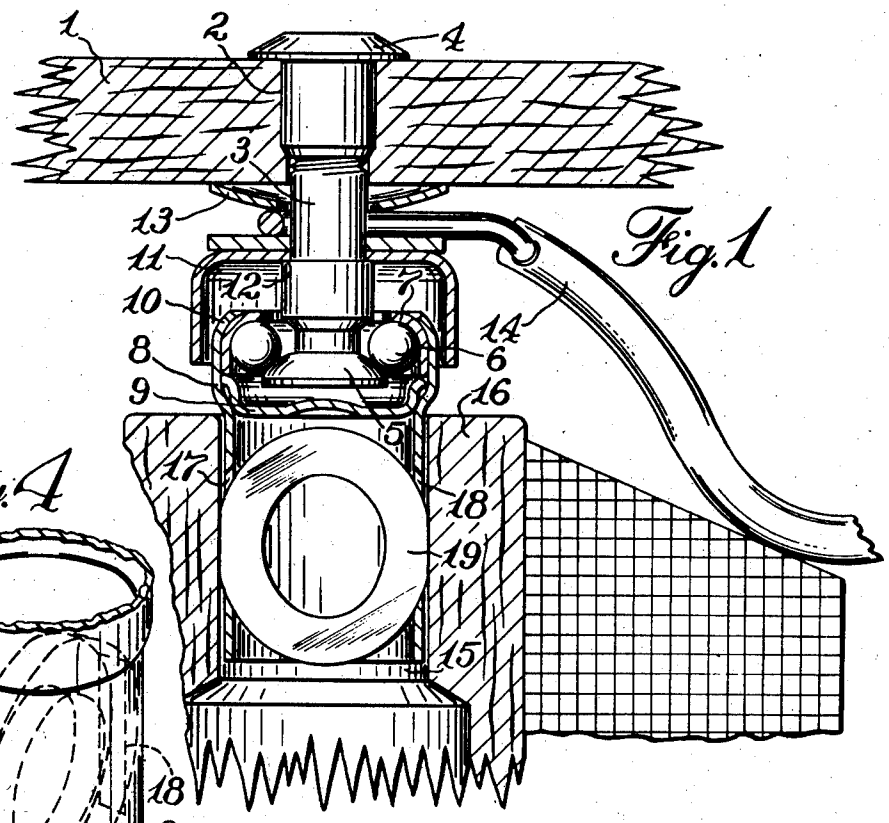


Fig. 1

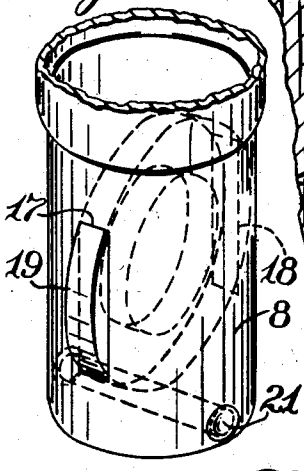


Fig. 4

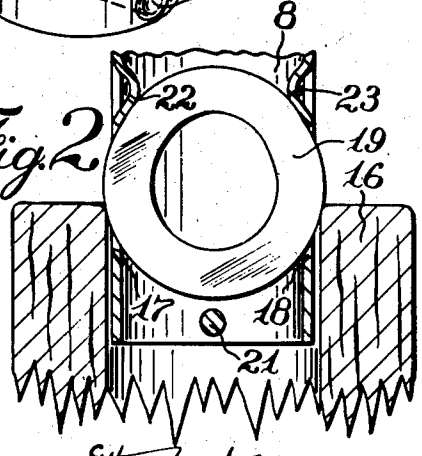


Fig. 2

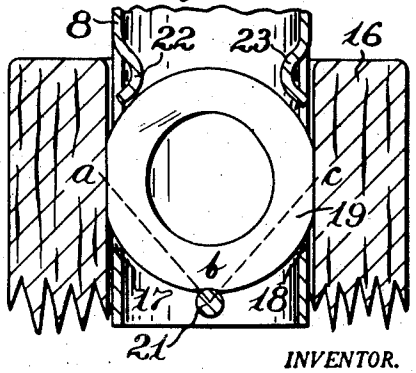


Fig. 3

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2,445,542

BOBBIN HOLDER

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3 Claims. (Cl. 242—130)

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The present invention relates to pendulous bobbin holders and more particularly to antifriction supports for bobbins and the like of the general type illustrated in the patent to Mann, 1,821,656.

It is an object of the present invention to provide a novel bobbin holder which is shorter than types previously developed so as to reduce the space necessary between the upper and lower creelboards, and facilitate the mounting of the bobbin on the holder.

It is another object to provide such a device incorporating a yielding attaching means which bears frictionally in the bore of the bobbin without necessitating the formation of an inner shoulder in said bore.

It is another object to provide such a device in which the attaching means is arranged to resist removal of the bobbin with a force substantially larger than that necessary to place the bobbin on the holder.

Further objects and advantages will be apparent from the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation, partly broken away and in vertical section, of a bobbin holder constituting a preferred embodiment of the invention;

Fig. 2 is a sectional detail of a second embodiment of the invention showing the parts in the positions assumed during the attachment of a bobbin to the holder;

Fig. 3 is a view similar to Fig. 2, the parts being shown in the positions assumed while the bobbin is suspended from the holder; and

Fig. 4 is a detail in perspective of the body portion and attaching means of a holder constructed as shown in Figs. 2 and 3.

In Fig. 1 of the drawing, there is illustrated a portion of a creelboard 1 of a spinning frame or the like having an opening 2 in which is inserted a supporting bolt 3 which is clamped to the creelboard by a nut 4. The lower end of the bolt 3 is provided with a spherical head 5 forming an inner race for a set of ball bearings 6, the outer race 7 of which is mounted in the upper end of a tubular body member 8. A thrust diaphragm member 9 is preferably mounted in the body member 8 in position to abut the bearing race 7, the assembly being preferably unified by spinning over the end of the body member as shown at 10.

A dust cover 11 is mounted on the bolt 3 against a shoulder 12 and an elastic washer 13

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is preferably located next to the creelboard to prevent loosening of the bolt by vibration. A brake member 14 is clamped between the dust cover and the elastic washer in position to bear on and control the rotation of a yarn package carried by the holder.

The body member 8 is arranged to fit loosely within the bore 15 of a bobbin 16, and is provided with diametrically arranged slots 17, 18 which extend axially of the body. A disc or ring 19 of elastically deformable material such as rubber is located axially within the body 8, with its outer edge protruding through the slots 17, 18. The diameter and thickness of the disc, and the dimensions of the slots are preferably so related that when the holder is not in use the disc substantially fills the slots and protrudes from the body a distance approximately equal to the thickness of the disc as shown in Fig. 4. This arrangement insures that the protruding portions of the disc will not bend sidewise but will merely be compressed radially when the bobbin is placed on the holder. It will be understood that, as stated above, member 19 may be either a disc or a ring, and if in the form of a ring, the central opening may be of any suitable size in relation to the outside diameter and the stiffness of the material to secure the desired deformation under the prevalent working pressures and weight to be supported. The term "disc" as used in the specification and claims is, therefore, intended to include both solid discs and perforated discs or rings.

In the operation of this embodiment of the invention, when a bobbin is pressed upward onto the holder, the projecting portions of the disc 19 are compressed, forcing the disc into a somewhat oval shape as illustrated in Fig. 1, whereby the disc provides a firm frictional grip within the bore 15 of the bobbin. This compression of the disc may be facilitated by suitably bevelling the upper ends of the slots 17, 18 as illustrated. Thereafter the weight of the bobbin is transmitted through the rubber ring 19 to the abutments in the body 8 formed by the bottoms of the slots 17, 18, whereby the bobbin is securely supported.

In the embodiment of the invention illustrated in Figs. 2, 3 and 4, means are provided for causing the attaching ring to expand and grip the bore of the bobbin with increasing pressure when tractive force is applied to the bobbin to draw it off the holder. This arrangement renders it possible for an operator to apply the bobbin to the holder with a minimum amount of effort

while insuring adequate adhesion between the bobbin and holder to prevent the bobbin from dropping off due to vibration etc.

As here shown, the body 8 of the bobbin holder is extended somewhat farther than in the embodiment illustrated in Fig. 1, and a support in the form of a pin 21 is suitably fixed in any suitable manner as by riveting in the bottom of said body in position to form a support for the rubber ring or disc 19. The slots 17, 18 in the body 8 are preferably extended slightly, and inclined tongues 22, 23 are formed at the upper ends thereof in order to facilitate compression of the upper part of the rubber ring when upward pressure is applied thereto. The pin 21 is so positioned that it prevents the ring 19 from engaging the bottoms of the extended slots in the body 8 so that the weight of the bobbin and the yarn package thereon is supported wholly by the pin 21.

In the operation of this embodiment of the invention, when the bobbin is applied to the holder as illustrated in Fig. 2, the engagement of the upper end of the bobbin with the ring 19 causes the latter to be pressed upwardly between the tongues 22, 23 of the holder thereby compressing the ring into a somewhat oval shape until its horizontal diameter is reduced to the diameter of the bore of the bobbin, whereupon the bobbin slips over the rubber ring into attached position. The pressure necessary to effect this adjustment is somewhat reduced by the assistance of the inclined tongues 22, 23 in compressing the ring.

When the bobbin is being supported by the holder as shown in Fig. 3, the weight of the bobbin is transmitted through the ring 19 to the pin 21 whereby a mechanical leverage is established in the nature of a toggle as indicated by the dotted lines *ab, bc,* which toggle effect causes the lower half of the ring to attempt to expand and thus press against the interior of the bobbin. This arrangement permits the attainment of a secure attachment of the bobbin to the holder while permitting the ring 19 to be designed to present very little resistance to the application of the bobbin to the holder.

Although but two embodiments of the invention have been shown and described in detail, it will be understood that other forms of the invention are possible and changes may be made in the proportions and arrangement of the parts without departing from the spirit of the invention as defined in the appended claims.

What is claimed is:

1. In a pendulous bobbin holder for spinning frames and the like, a cylindrical body adapted to loosely fit in the axial bore of a bobbin and having diametrically arranged longitudinal slots intermediate its length, means for pendulously supporting the body from a creelboard with freedom for rotation and universal movement, and a disc of elastically deformable material mounted lengthwise in the body and projecting through said slots to frictionally engage the bore of the bobbin, the thickness of the disc being approximately as great as the maximum distance the disc protrudes from said slots.

2. In a pendulous bobbin holder for spinning frames and the like, a cylindrical body adapted to loosely fit in the axial bore of a bobbin and having diametrically arranged longitudinal slots intermediate its length, means for pendulously supporting the body from a creelboard with freedom for rotation and universal movement, and a disc of elastically deformable material mounted lengthwise in the body and projecting through said slots to frictionally engage the bore of the bobbin, said body being provided with means for engaging and supporting the disc at its bottom so that downward force applied to the projecting portions of the disc cause it to expand and grip more tightly the interior of the bobbin.

3. In a pendulous bobbin holder for spinning frames and the like, a cylindrical body adapted to loosely fit in the axial bore of a bobbin and having diametrically arranged longitudinal slots intermediate its length, means for pendulously supporting the body from a creelboard with freedom for rotation and universal movement, and a disc of elastically deformable material mounted lengthwise in the body and projecting through said slots to frictionally engage the bore of the bobbin, said body being formed with a bottom support for the disc, and said slots extending downwardly sufficiently to provide clearance for the disc so that the weight of the bobbin is taken by said support, the upper ends of the slots being beveled to facilitate compression of the disc as the bobbin is applied to the holder.

ANTHONY J. STROZINSKI.

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The following references are of record in the file of this patent:

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