Nov. 27, 1923. 1,475,704

J. KAUFMANN

BOBBIN

Filed March 10, 1921

Fig. 1.

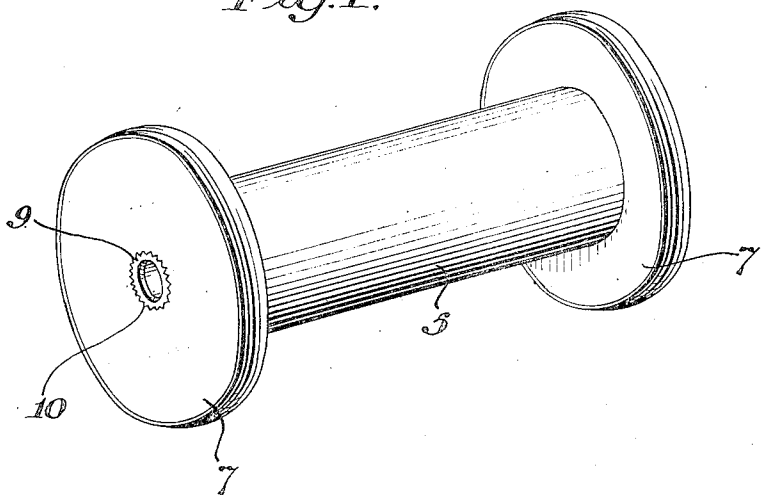


Fig. 2.

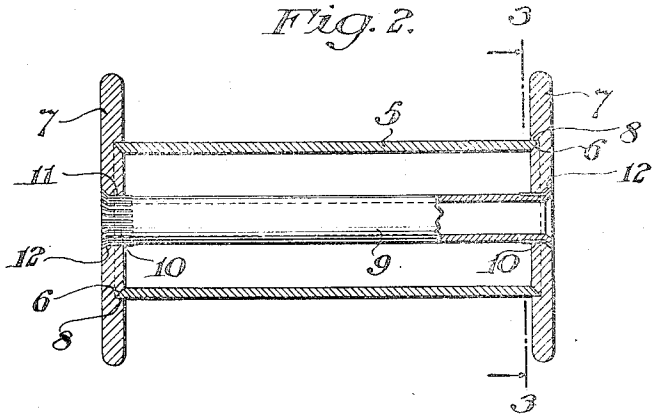
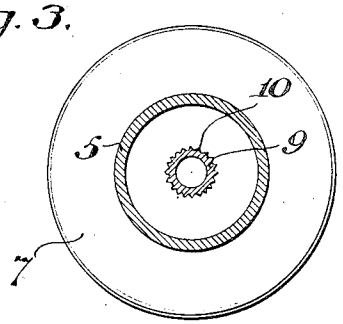


Fig. 3.



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Patented Nov. 27, 1923. 1,475,704

UNITED STATES PATENT OFFICE.

JACOB KAUFMANN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO STEEL HEDDLE MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

BOBBIN.

Application filed March 10, 1921. Serial No. 451,132.

To all whom it may concern:

Be it known that I, JACOB KAUFMANN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Bobbins, of which the following is a specification.

My invention relates to bobbins, and particularly to that type of bobbin which is used in large numbers in various branches of the textile industry. Heretofore, the most common form of such bobbins was turned from a solid block of wood, but considerable difficulty is experienced in the use of such bobbins an account of portions of the flanges splitting off, and through deformation on account of climatic conditions, causing the bobbin to warp and to become otherwise defective.

To overcome these difficulties, various attempts have been made to provide bobbins with separately attached flanges, but such structures have been more or less unsatisfactory in use, on account of openings often occurring at the joints between the several members of which the same was made up, in which openings the thread or yarn would catch and foul. In other arrangements, on account of the nature of the structure, the flanges would become loose, and in some instances would be permitted to rotate with respect to the barrel of the bobbin or with respect to each other.

The object, therefore, of my present invention is to provide an improved form of bobbin which will not be affected by climatic changes, which will be relatively light and inexpensive in its construction, yet durable in use, which will be so constructed and arranged as to preclude the catching of the thread wound thereon in any seams or openings, and in which the flanges will be securely held against rotation, not only with respect to the barrel portion, but with respect to each other.

The nature and characteristic features of my invention will be more readily understood from the following description taken in connection with the accompanying drawings forming part hereof, in which

Figure 1 is a perspective view of a bobbin embodying the main features of my present invention;

Fig. 2 is a longitudinal central section thereof, certain parts of the interior portions being shown in elevation to more clearly illustrate the features of the construction; and

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 2.

Referring to the drawings, in the particular embodiment of my invention therein shown, 5 is the barrel portion of the bobbin which comprises a tube, preferably made of fibre or other tough and durable material, properly treated so as to be impervious to the effects of moisture in the atmosphere. Each end of the tube comprising the barrel portion 5 is internally beveled as at 6, for a purpose to be presently explained.

At each end of the barrel portion 5 there is mounted a flange 7, each flange comprising a disc-like member having an annular recess as at 8 on its inner surface, in which recess the end of the barrel portion 5 is seated. The annular recess 8 is shaped complemental to the end of the barrel portion 5, that is to say, the outermost surface of said recess is cylindrical and normal to the inner surface of the flange 7, while the innermost surface of said recess is inclined or conical in shape, so as to conform to the internally beveled end surface of the barrel portion 5. By this arrangement, when suitable pressure is imparted to the ends of the bobbin during the assembling of the same, each end of the barrel 5 will tend to expand and will be forced into a close, intimate fit in the recess 8 of the flange 7. In this manner, the possibility of any open seam or crevice occurring at the place of jointure between the ends of the barrel and the flanges will be precluded.

To provide means for holding the structure in its proper assembled condition, as well also to provide a suitable journal for mounting the bobbin on the spindle of the textile machinery in connection with which the same is used, there is provided a metallic tube 9, centrally positioned and extending from end to end of the structure. Each end of the metallic tube 9 is provided with a series of longitudinal serrations 10 which are adapted to engage the central aperture 11 of the flange 7, and, on account of these serrations being provided at each end of the tube 9, the flanges 7 will be effectively prevented from rotating with respect to the

barrel 5 as well as with respect to each other. In order to securely hold the flanges 7 properly positioned with respect to the barrel 5, the central aperture 11 of each of the flanges 7 is chamfered as at 12, and the respective ends of the tube 9 are expanded in any suitable manner so as to spread the same into engagement with the chamfered portion 12 of the aperture 11 of the flange 7, in this manner effectively preventing longitudinal disengagement of the various parts of the structure, as well also maintaining the ends of the barrel 5 in close, intimate contact with the surfaces of the recesses 8 of the flanges 7. The ends of the tube 9 are finished flush with the outer surfaces of the disc-like flange members 7.

It will be seen that in the foregoing structure, there is provided a bobbin or spool which may be inexpensively constructed, and which will be light in weight yet exceedingly durable and useful for its intended purpose, the tube comprising the barrel portion 5, as well as the flanges 7, being made of a tough and durable material, such as fibre or the like, which is impervious to the effects of moisture in the atmosphere. The structure will not be subject to deformation or destruction on account of climatic conditions, nor will there be any possibility of the thread catching in any joints or fissures between the several parts of which the structure is made up, and the entire device will easily withstand the rough usage to which devices of this character are ordinarily subjected.

Having thus described the nature and characteristic features of my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A bobbin comprising an intergral tubular barrel portion, flange members mounted at each end of said barrel portion comprising integral discs having annular recesses shaped complemental to the ends of the barrel portion and in which recesses said ends are seated, and a uniting device comprising a tubular member mounted within the barrel portion and having its ends serrated, said serrated ends engaging central apertures in the flanges.

2. A bobbin comprising an integral tubular barrel portion, flange members mounted at each end of said barrel portion comprising integral discs having annular recesses shaped complemental to the ends of the barrel portion and in which recesses said ends are seated, and a uniting device comprising a tubular member mounted within the barrel portion and having its ends serrated, said serrated ends engaging central apertures in the flanges and said tube having its ends expanded to retain said flanges in position.

3. A bobbin comprising an integral tubular barrel portion having its ends internally beveled, flange members mounted at each end of said barrel portion comprising integral discs having annular recesses shaped complemental to the beveled ends of the barrel portion and in which recesses said ends are seated, and a uniting device comprising a tubular member mounted within the barrel portion and having its ends serrated, said serrated ends engaging central apertures in the flanges.

4. A bobbin comprising an integral tubular barrel portion having its ends internally beveled, flange members mounted at each end of said barrel portion comprising integral discs having annular recesses shaped complemental to the beveled ends of the barrel portion and in which recesses said ends are seated, and a uniting device comprising a tubular member mounted within the barrel portion and having its ends engaging central apertures in the flanges and expanded to retain said flanges in position.

5. A bobbin comprising an integral tubular barrel portion having its ends internally beveled, flange members mounted at each end of said barrel portion comprising integral discs having annular recesses shaped complemental to the beveled ends of the barrel portion and in which recesses said ends are seated, and a uniting device comprising a tubular member mounted within the barrel portion and having its ends serrated, said serrated ends engaging central apertures in the flanges and said tube having its ends expanded to retain said flanges in position.

In testimony whereof, I have hereunto signed my name.

JACOB KAUFMANN.