June 14, 1932. F. W. McCONNEL ET AL 1,862,694

BOBBIN

Filed Dec. 19, 1929

Fig. 1.

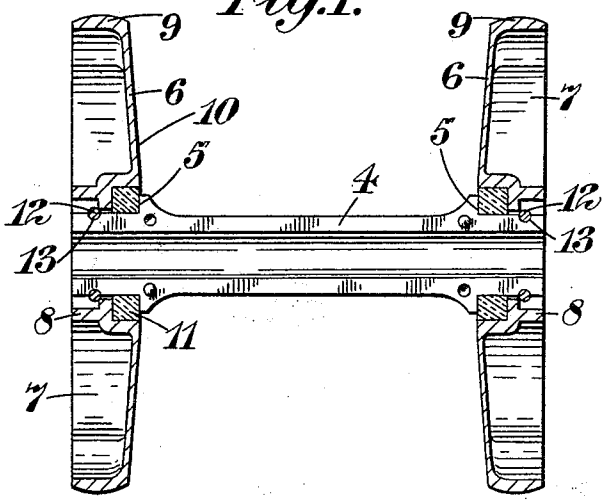


Fig. 2.

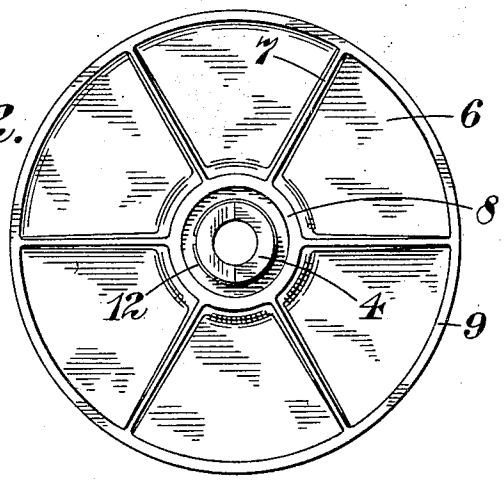
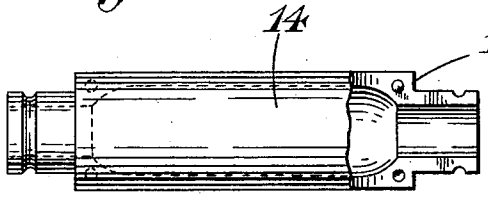


Fig. 3.



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UNITED STATES PATENT OFFICE

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BOBBIN

Application filed December 19, 1929, Serial No. 415,299, and in Great Britain December 21, 1928.

The present invention is for improvements in or relating to bobbins, particularly for use with heavy weaving machines, and its object is to provide a bobbin capable of withstanding rough handling and shock without breaking.

According to the present invention, a bobbin comprises a sleeve and two flanges and means for resiliently attaching the flanges to the sleeve. Such means preferably comprise a rubber buffer interposed between the flanges and the sleeve.

Preferably, the rubber buffer is of annular form and is received in an annular recess in the flange so that only a very small portion of the buffer is exposed.

One construction according to the invention will now be described with reference to the accompanying drawing, in which—

Figure 1 is an axial section through the assembled bobbin;

Figure 2 is an end elevation of the bobbin;

Figure 3 shows a modified form of the sleeve.

Like reference numerals indicate like parts throughout the several views.

The various parts of the bobbin to be hereinafter described are for convenience formed by die casting, although we do not limit ourselves to manufacture by this method.

The cylindrical spindle 4 of the bobbin is formed in two separate halves, which are dowelled together. This affords a construction by which the parts can be easily trimmed after casting. The spindle 4 is made hollow for lightness and cheapness. Near each end of the spindle a circumferential shoulder 5 is formed.

Each flange 6 is formed as a shallow dish, the base of which is slightly conical. Ribs 7 are cast integrally in the concavity of the dish and extend radially between a central integral boss 8 and a flange or rim 9 at the outer circumference. The ribs 7 are preferably tapered so as to increase in thickness (measured circumferentially) as they approach the boss 8. The exterior surface of the conical face 10 of the flange 6 which will face inwardly (i. e. towards the companion flange when assembled), is smooth and continuous with the end of the boss 8. On this smooth face 10 of the flange 6, there is an annular recess or enlargement of the central aperture into which fits an annular rubber buffer 11. This buffer 11 fits over the spindle 4 and abuts against the circumferential shoulder 5 thereon, thus limiting inward movement of the flange 6. The flanges 6 are held on to the spindle 4 by spring-rings 12 engaging circumferential grooves 13 formed on the spindle 4 between its ends and the shoulders 5.

The aperture in the flange 6 is a slack fit on the spindle 4 and, therefore, a certain amount of relative movement is possible between the flange and the spindle due to the resilience of the rubber ring 11. This construction renders the bobbin much less liable to breakage when dropped from a height as frequently happens during the use on a weaving machine.

Each flange 6 is preferably provided with a second annular recess or enlargement of the aperture on its outer face on the bobbin, to accommodate the spring-ring so that the end of the spindle 4 is flush with the outside face of the boss 8.

In Figure 3 is illustrated a modified form of spindle for a bobbin. The spindle 14 as previously described is formed in two separate halves which are dowelled together, the diameter of the spindle, however, being constant between the shoulders 15 as distinguished from the spindle shown in Figure 1 in which the diameter is smaller at the middle.

The construction of a bobbin according to this invention is not confined to the details of construction as described in the foregoing, and is not limited to use with weaving machines as it may be usefully employed for spools for use with photographic or other films, strips, bands or threads.

We claim—

1. A bobbin comprising in combination a sleeve having a shoulder near each end, two opposed end flanges thereon with opposed annular recesses facing one another so as to afford accommodation for an annular buffer to engage the sleeve and shoulder thereon.

2. A bobbin comprising in combination a sleeve, end flanges thereon whereof the flanges have a central boss integral with a conical face having an outside rim and ribs formed thereon between the boss and the rim, the ribs being tapered so as to increase in thickness towards the boss, and resilient buffers which are interposed between said flanges and the sleeve portion and serve as resilient interconnecting supports between the flanges and the sleeve.

3. A bobbin comprising in combination a sleeve provided with a shoulder near each end, two annular rubber buffers to fit thereon and prevented from moving too far inwards by the shoulders, two end-flanges provided with annular recesses to receive the annular buffers, wherein the flanges have a central boss integral with a conical face having an outside rim and ribs formed thereon between the boss and the rim, the ribs being tapered so as to increase in thickness towards the boss, and spring rings for holding the flanges in engagement with the rubber buffers.

4. A bobbin comprising in combination a cylindrical sleeve provided with shoulders near each end, two annular rubber buffers one to fit over each end of the sleeve and adapted to butt up against the shoulder at that end of the sleeve, two end flanges which are provided with annular recesses in their inner faces to receive the annular buffers so that only a very small portion of each buffer is exposed and spring rings which are adapted to register in circumferential grooves formed in the sleeve and which hold the flanges in position against the annular rubber buffers.

5. A bobbin comprising, in combination, a sleeve having an abutment near each end, end flanges on the sleeve having opposed recesses facing one another, two resilient buffers on the sleeve, one disposed between each abutment and its flange, and received in a recess provided in that flange, the resilient buffers serving as resilient interconnecting supports between the flanges and the sleeves, to cushion the flanges in both axial and radial directions.

In testimony whereof we have signed our names to this specification.

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