July 14, 1936. M. SCHURMANN 2,047,434

KNOCK-DOWN SPOOL OR BOBBIN

Filed June 12, 1935

Fig. 1.

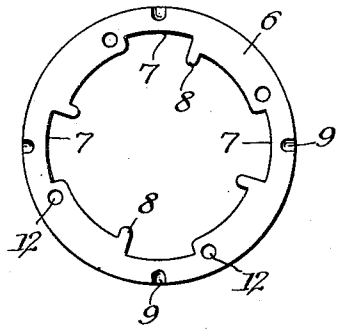


Fig. 2.

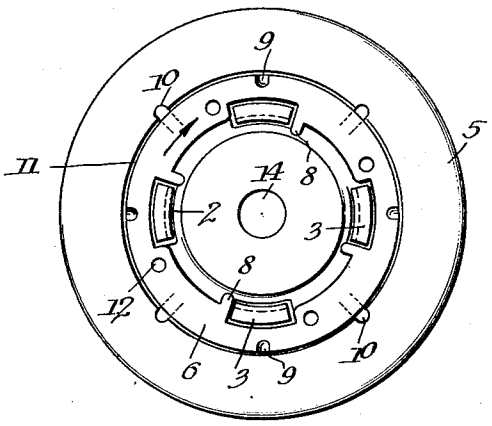


Fig. 4.

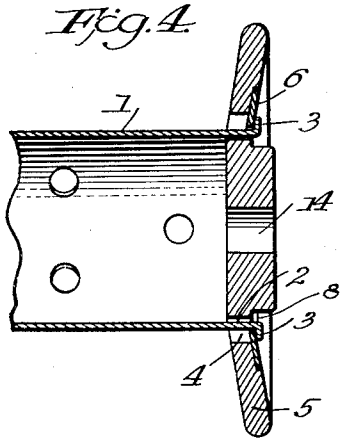
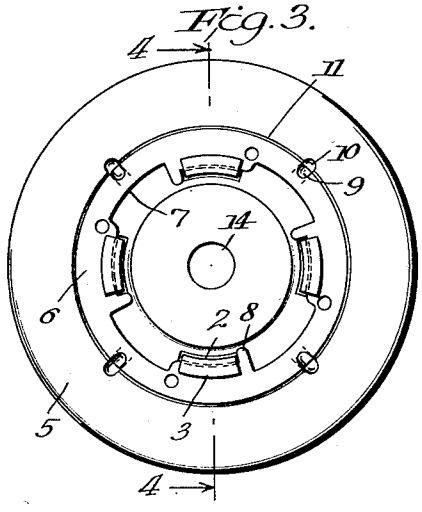


Fig. 3.



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2,047,434

KNOCK-DOWN SPOOL OR BOBBIN

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Application June 12, 1935, Serial No. 26,272
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14 Claims. (Cl. 242—124)

This invention relates to spools or bobbins, and has for its object to provide a knock-down spool in which the flanges may be readily renewed or replaced in event of breakage or wear.

In the drawing herewith I have illustrated one embodiment of my invention, but it will be understood that this disclosure is illustrative only and in no sense restrictive as the construction shown may be varied within the range of mechanical skill and yet remain within the purview of my invention.

In the drawing:

Figure 1 is a side view of the detachable locking means for holding the flange of the spool to the body.

Figure 2 is a view in end elevation of a spool showing the flange and the locking device in entering position for assembling the parts.

Figure 3 is a view showing the parts interlocked or engaged by rotation in the direction of the arrow shown in Figure 2.

Figure 4 is a sectional view taken substantially along the line 4—4 of Figure 3.

Referring to the drawing by numbers, like numbers indicating like parts in the several views, 1 indicates the body of the spool, which body portion is provided at its ends with the projecting tongue members 2 having bent-over portions or lugs 3. These projections 2 with their bent-over portions 3 are passed through apertures 4 in the flange 5, and as the projections 2 fit snugly the hub portion of the flange, the parts will be centered symmetrically with respect to one another. The length of the projections 2 is such that the bent-over portions 3 will clear the outer face of the flange and be slightly spaced therefrom.

The bent-over portions 3 are circumferentially disposed as shown in Figures 2 and 3, and as here shown are four in number, although the number may be increased or diminished as desired.

These bent-over portions or lugs 3 are engaged by a lock washer 6 which is provided with notches 7 so that when the flange 5 has been assembled with the body portion 1, as shown in Figure 2, the notches 7 in the washer 6 permit the lugs 3 to pass through the washer. In this position, the washer 6 is then turned in the direction of the arrow shown in Figure 2, and the parts brought to the position shown in Figure 3. In this position the lugs 3 will pass from the notches 7 and engage the inner perimeter of the washer 6, the washer being rotated until lugs 3 strike the radial projections 8, which prevents further rotation. In this position the body portion 1 and the flange 5 will be securely interlocked. The frictional engagement of the washer 6 and the lugs 3 tends, of course, to maintain the parts in the interlocked position shown in Figure 3, but to prevent the parts from being accidentally displaced I preferably provide projections or ribs 9 on the washer face which, when the washer is brought to the position shown in Figure 3, engage notches 10 in the flange and hold the parts against displacement. The washer 6 will preferably be of spring metal or other resilient material so that when fitted against the face of the flange behind the bent-over portions or lugs 3, the washer will have a spring or tensioning action against the lugs and hold the parts snugly in place. In order that the outer face of the flange 5, when the parts are in the position shown in Figure 3, will be smooth and free from projecting parts, I preferably countersink the outer face of the flange as shown at 11 in Figure 3, so that the washer 6 will lie flush with the outer surface of the flange. The flange may be dished on its outer face. Apertures 12 are formed in the washer 6 to be engaged by the fingers of a tool.

With this construction, a very simple, easily manipulated securing means is provided for coupling the body portion and the flanges of a spool, and one which will permit its ready assembling, and replacement of worn or broken flanges so as to extend the life of the spool.

It will be understood that such departures from the disclosure here shown as are within the skill of the mechanic may be made without departing from the range of my invention, and I do not limit myself to the specific construction here disclosed.

I claim:

1. In a spool, the combination of a body portion having a plurality of projections at its end, a flange provided with apertures to receive said projections, and a movable locking member adapted to engage said projections and interlock said body and flange together, said locking member and said projections being movable relative to each other.

2. In a spool, the combination of a body portion having a plurality of projections at its end, a flange provided with apertures to receive said projections, and a rotatable locking washer adapted upon rotation to engage said projections and interlock said body and flange together.

3. In a spool, the combination of a body portion having a plurality of projections at its end, a flange provided with apertures to receive said projections, and a rotatable spring locking washer adapted upon rotation to engage said projections and interlock said body and flange together.

4. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections, and a rotatable locking washer adapted upon rotation to engage said projections and interlock said body and flange together.

5. In a spool, the combination of a body portion having a plurality of projections with outwardly turned interlocking lugs at its end, a flange provided with apertures to receive said projections, and a rotatable locking washer adapted upon rotation to engage said projections and interlock said body and flange together.

6. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures adjacent its hub to receive said projections, and a rotatable washer having lug receiving notches therein adapted upon rotation to engage said projections and lock said body and flange together.

7. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections, a rotatable washer adapted upon rotation to engage said projections and interlock said body and flange together, and interengaging means on said washer and flange to limit rotation of said flange relative to said projections.

8. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections, a rotatable washer adapted upon rotation to engage said projections and interlock said body and flange together, and struck-up projections on said washer to engage recesses on said flange and hold said washer against rotation.

9. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections, a rotatable washer having notches to receive said projections and upon rotation interlock said body and flange together, and stop means on said washer to engage said interlocking lugs and prevent further rotation of said washer.

10. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections, a rotatable washer adapted upon rotation to engage said projections and interlock said body and flange together, interengaging means on said washer and flange to limit rotation of said washer, and stop means on said washer to engage said interlocking lugs and prevent further rotation of said washer.

11. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections, a rotatable washer having notches to receive said projections and upon rotation interlock said body and flange together, and radially disposed lugs on said washer to engage said interlocking lugs and prevent further rotation of said washer.

12. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections, a rotatable resilient washer having notches to receive said projections and upon rotation interlock said body and flange together, and radially disposed lugs on said washer to engage said interlocking lugs and prevent further rotation of said washer.

13. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections and having a washer-receiving seat, a rotatable resilient washer in said seat having notches to receive said projections and upon rotation interlock said body and flange together, and radially disposed lugs on said washer to engage said interlocking lugs and prevent further rotation of said washer.

14. In a spool, the combination of a body portion having a plurality of projections with interlocking lugs at its end, a flange provided with apertures to receive said projections and having an outer dished face provided with a washer receiving seat, a rotatable resilient washer mounted in said seat and having notches to receive projections adapted upon rotation to interlock said body and flange together, and radially disposed lugs on said washer to engage said interlocking lugs and said body portion and limit rotation of said washer.

MARTIN SCHURMANN.