Aug. 28, 1956 E. W. BEBIE 2,760,732

CORE CAP

Filed April 6, 1954

Fig. 1.

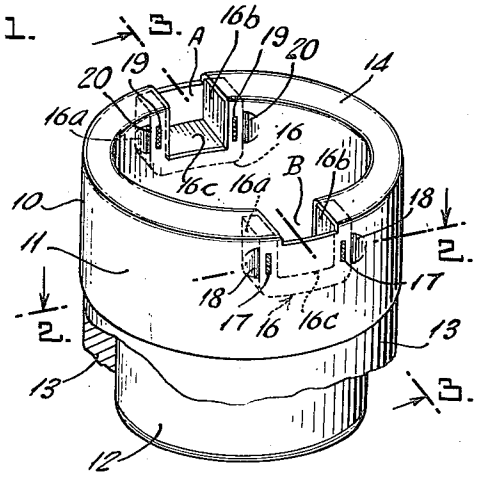


Fig. 4.

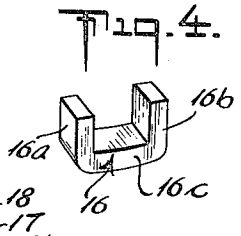


Fig. 2.

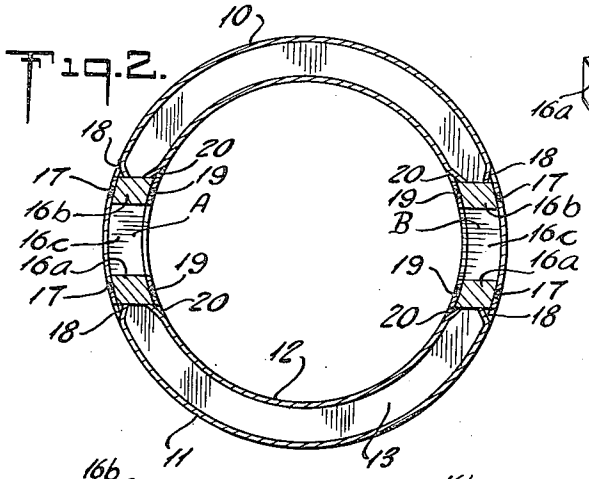
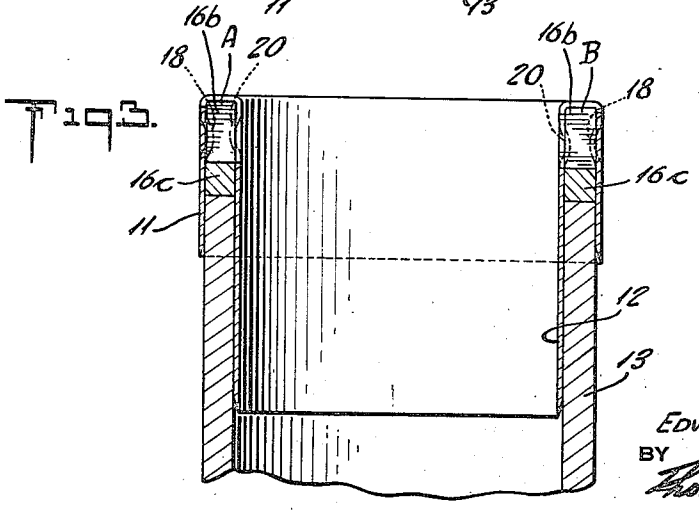


Fig. 3.



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CORE CAP

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1 Claim. (Cl. 242—68)

This invention relates in general to new and useful improvements in caps for cores upon which paper or a similar material is wound, and particularly seeks to provide an improved keyway or stud-engaging recess for such caps.

Metal caps are commonly used on the ends of paper tubes which serve as cores for heavy rolls of paper. These caps provide means for connecting the core with a driving mechanism to effect winding or unwinding of the heavy paper rolls. This driving mechanism in most instances comprises a driving shaft having a projecting key or stud which engages a keyway on the core cap.

Previously core caps have been made with keyways defined by a depressed inner sleeve portion or by merely cutting away sufficient metal of the cap to form the keyway. It has been found, howveer, that the keyways so constructed have frequently failed due to the large stresses set up by repetitive starting and stopping the rotation of heavy paper rolls. Workers in the prior art have attempted to reinforce the keyways, but the devices used either required the removal of an excessive amount of core stock or were expensive to manufacture.

Accordingly, it is an object of the invention to provide a core cap having an improved reinforced keyway which is of simple construction and easy to manufacture and which will have superior strength.

It is a more specific object of the invention to provide a core cap with a keyway having a metal insert which is secured to the core cap in a novel manner to provide an effective keyway having superior strength when subjected to starting and stopping stresses.

A further object of this invention is to provide improved means for securing the keyway insert against lateral displacement during core operation.

For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated and described a preferred embodiment of the invention.

In the drawings:

Fig. 1 is a perspective view of a core cap constructed in accordance with the invention;

Fig. 2 is a horizontal section taken on line 2—2 of Fig. 1;

Fig. 3 is a vertical section taken on line 3—3 of Fig. 2; and

Fig. 4 is a perspective view of the reinforcing insert.

Referring to the drawings in detail the invention as illustrated comprises a core cap generally indicated at **10** formed from a single blank of sheet metal and including an outer sleeve or flange portion **11** and a longer concentric inner sleeve or flange portion **12** between which the end of a tubular paper core **13** is received in a tight fit. The sleeve portions **11** and **12** are connected at their outer ends by a web portion **14**.

The core cap **10** is provided with one or more reinforced keyways A and B which in this instance are positioned at diametrically opposite positions on the core cap.

One, two or more keyways may be used, depending on the size of the core with which it is to be used. The keyways are formed by cutting segments from the web and sleeve portions and securing a reinforcing insert generally indicated at **16** between the inner and outer sleeves inside the cutaway portion. The keyways are dimensioned to receive keys or studs from a driving shaft (not shown) which will rotate the core and the paper carried thereby.

In accordance with this invention the keyways A and B are reinforced with the U-shaped inserts **16** as shown in Fig. 4. These inserts have substantially rectangularly-shaped inner portions which form the inside of the keyways when secured in place between the inner and outer sleeves of the cap. They can be inexpensively made of pressed metal rather than heavy forged or cast metal.

The inserts **16** have two leg portions **16***a* and **16***b* joined together by a web portion **16***c*. In accordance with this invention the leg portions are positioned adjacent the cut-away portions of the core cap sleeves and are welded as at **17** and **19** to the outer and inner sleevs, and after the insert is welded to the sleeves both the outer and inner sleeves are crimped adjacent the outside edges of each insert as at **18** and **20**, respectively. The crimps **18** and **20** are made by depressing the metal sleeves inwardly, i. e., the outer sleeve **11** is depressed toward its center of curvature, and the inner sleeve **12** is depressed away from its center of curvature.

The crimps are positioned so that the edges of the pressed-in portions of metal from both sleeves are adjacent each side edge of the insert **16** in abutting relation therewith. With this crimping of the sleeves the stresses which act on the metal insert are distributed evenly along the sleeve walls. Thus where it would normally be necessary to use a heavy and dimensionally large cast slug to withstand the stresses imparted to the keyway, it is possible with this invention to use a very light and small insert of pressed metal or the like; and because it is possible to use a small reinforcing insert, it is not necessary to remove an appreciable amount of material from the core **13**. As a result the core itself will not be weakened to any great extent.

The invention provides a core cap having a reinforced keyway which is of very simple construction and which is particularly strong. The reinforcing insert in firmly positioned in the keyway both by welding and by the novel crimping of the sleeve metal which provides side abutments for the insert and evenly distributes the operating stresses along the walls of the core cap. With this construction it is possible to have a plurality of keyways in a core cap without causing the removal of a large amount of paper from the core and when it is notched to receive the keyways.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the invention principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

I claim:

A core cap comprising inner and outer concentric sleeves, a web connecting said sleeves together at one end, a portion of said inner sleeve and web being cut away to form a stud-receiving recess, and a substantially U-shaped reinforcing insert affixed between said sleeves in a position spanning said recess, portions of said sleeves being provided with slits disposed in parallelism with and overlying the lateral edges of said insert, and the material of said sleeves immediately adjacent said slits being depressed into the space between said sleeves whereby to form abutments each having a face lying in a single plane contacting the adjacent face of said insert.

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