L. & J. CARLINO.

WINDING CORE BUSHING.

APPLICATION FILED AUG. 20, 1915.

1,241,193.

Patented Sept. 25, 1917.

Fig. 1.

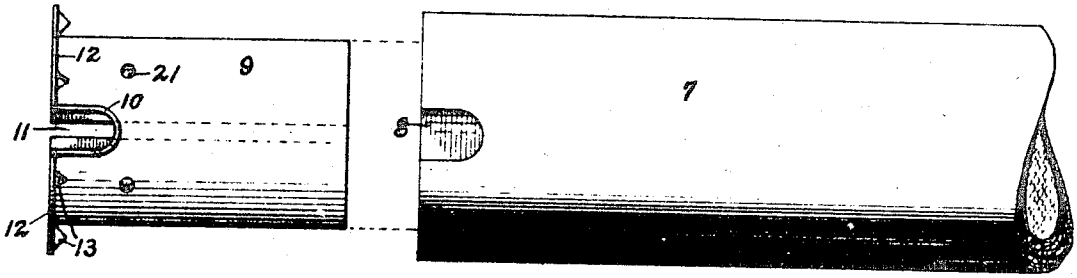


Fig. 2.

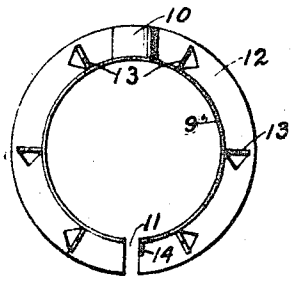


Fig. 3.

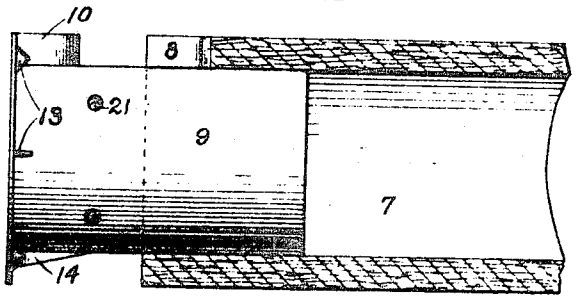


Fig. 4.

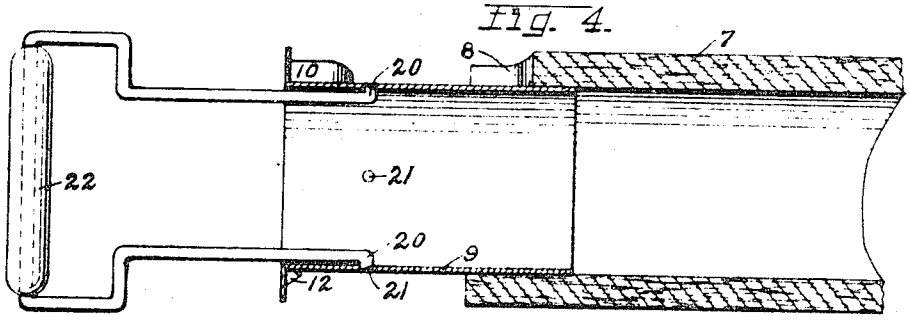


Fig 5

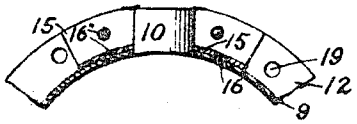
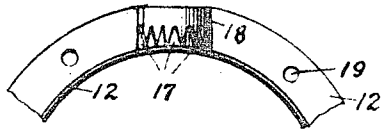


Fig. 6.



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UNITED STATES PATENT OFFICE.

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WINDING-CORE BUSHING.

1,241,193. Specification of Letters Patent. Patented Sept. 25, 1917.

Application filed August 20, 1915. Serial No. 46,542.

To all whom it may concern:

Be it known that we, LUIGI CARLINO and JOSEPH CARLINO, citizens of the United States, residing, respectively, at Niagara Falls, county of Niagara, State of New York, and Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Winding-Core Bushings, of which the following is a specification.

This invention relates to spools or reels, and it more particularly relates to an improved winding-core bushing.

For the sake of economy in the manufacture of news paper stock and other classes of paper, the tubes or cores upon which the paper is wound are usually returned to the factory from the consumer, and are repaired when necessary and used over repeatedly. The necessary repairs often consists in cutting off or out a collapsed end or section and refitting the bushings in the ends, so that the previously long core is reduced to a suitable length for receiving one of the narrower widths of paper thereon.

In refitting the bushings or caps that were known to applicant prior to the present invention, it was always necessary to cut away the material both from the inside and the outside at the ends of the paper or composition tube or core, and to snugly fit and secure the bushing in place; and it is often necessary to hammer or swage the bushings or caps into proper shape before they can be applied to said core or core body. This necessitates a great waste of valuable time and consequent expense; and it is this waste that is sought to be eliminated or avoided.

Wherefore, the primary and main object of this invention is to provide a thoroughly practical, efficient and easily removable and replaceable bushing of the character mentioned.

The contributory objects are to provide a bushing of this character that is self-adjusting and self-fastening, and which may be applied by an inexpert and inexperienced person.

A further object is to provide a device of this character that is comparatively inexpensive.

For the attainment of the foregoing objects, we have illustrated certain embodiments of our invention in the accompanying drawings in which—

Figure 1 is an elevation view of one embodiment of the invention, shown in position to be moved longitudinally toward the left and seated in the end of the core body. Fig. 2 is an end view of the same bushing, viewed from the left in Fig. 1. Fig. 3 is an elevation of the same device viewed at right angles to Fig. 1, the same being started into its seat within the core body, which latter is in section. Fig. 4 is a longitudinal sectional view of the same bushing in connection with a puller which is designed for convenience in removing the bushings. Fig. 5 is a modified form, shown in sectional detail, of one means of securing the U-flange or driver stud-engaging loop. Fig. 6 is a similar view, showing another means of seating the U-flange.

In these drawings, in which similar reference characters correspond with similar parts throughout the several views, the tubular body or core 7 may be of paper or other suitable material and is formed at its ends with the usual notches one of which is shown at 8. The substantially cylindrical body 9 of the bushing is notched at one end, and around this notch is secured, by any suitable means, a U-flange 10 which is of the proper size and shape to snugly fit within the notch or recess 8, while the body 9 snugly fits within the cavity of the tube 7. This body 9 is formed with its two rectilinear edges spaced apart, so as to provide a space 11 extending its entire length, so that said body may be reduced in diameter, for inserting it in the tube 7, and may expand within said tube, by its own elasticity, so as to insure a tight fit.

Two separated and semi-cylindrical flange sections 12 are formed at or secured to the outer end of the body 9; each of these flange sections having one end secured to the U-flange 10 and having its other end terminat-

ing at the slot or space 11. These flanges 12 lie flat against the end of the body 7 when the bushing is seated, and a number of pointed tongues or spurs 13 are embedded in the end of said body member or core 7, so as to assist the flange 10 in preventing the bushing from turning relatively to the member 7. As an additional means of preventing the bushing from turning, we may form a sharp edged flange or blade 14 at the edge of the slot 11, which will cut its way into the body 7 when the bushing is driven into its seat. These elements 13 and 14 may be struck up and turned out from the sheet metal flange and cylinder, as illustrated in Fig. 2, or they may be otherwise positioned and secured.

The U-flange may be formed integrally with the body 9 and flange 12, or secured thereto, as by brazing or welding; or it may be formed with wings or ears 15 and secured by rivets 16, as shown in Fig. 5; or it may be secured as shown in Fig. 6, in which tongues 17 and 18 are turned out from the body 9 and flange 12, around the U-flange, to provide a secure hold for solder or brazing which may be employed for securing said U-flange in place. In case it is desired to dispense with the tongues 13, screw holes 19 may be provided in the flanges 12.

It should be understood by those familiar with the art that the "driver stud", referred to in the brief description of Fig. 5, projects from a shaft or axle around which the winding core is placed preparatory to winding paper on the latter, and that two of these bushings are employed with each winding core, one bushing being fitted into each end of the core and prevented from rotating relative to said core and relative to said shaft or axle while the latter is turned for driving the bushings and core so as to wind the paper on the latter.

In order that the bushings may be quickly and easily removed, any suitable pulling tool may be used, such for instance as the one illustrated in Fig. 4, which is formed with hooks 20 adapted to engage with the apertures 21, and having a handle 22.

Without limiting our invention to the exact construction and arrangement of parts herein disclosed,—

We claim,—

1. A bushing comprising a cylindrical body having separate peripheral flange sections at one end and a U-flange connecting with the opposing ends of said flange sections.

2. A self expanding cylindrical bushing having an open-ended notch in one end and having an outwardly extending U-flange around the sides of the notch.

3. A sheet metal bushing having a cylindrical portion adapted to be fitted within a plane-ended tube and having a peripheral flange formed with sharp projections struck up therefrom and extending along axially parallel lines and in position to penetrate the plane end surface of said tube.

4. A self expanding bushing having a cylindrical portion and a radially extending peripheral flange at one end and formed with a slot extending throughout its length and intersecting said flange.

5. A bushing comprising an expansible cylinder having a blade thereon and being adapted to be fitted within a tube with said blade embedded in the tube, said cylinder being formed with a peripheral flange having projections thereon in position to be embedded in the end of said tube.

6. A self-expanding bushing comprising a cylindrical body and a radially flanged end having a notch therein and a flange extending outward from the edge of said notch and connecting with said radially flanged end.

7. A bushing comprising a cylindrical portion slotted from end to end and having a notch at one end and a U-flange section at the edge of said notch, and two peripheral and radial flange sections connected to said U-flange section and having projections overhanging said cylindrical portion.

8. A bushing comprising a body portion adapted to expand by its own elasticity in a tube and having engaging elements adapted to be embedded in said tube, said body being formed with tool-engaging means whereby it may be conveniently withdrawn from its seat in said tube.

9. A cylindrical bushing having a notch in one end and formed with an up-turned edge at the margin of the notch, and a U-flange fitted against the upturned edge and secured thereto.

10. A bushing comprising an expandible cylindrical body adapted to be fitted within a tube and having an end flange adapted to be fitted against the end of said tube and being provided with projections adapted to be embedded in the walls of the tube, said cylindrical body being notched at the end adjacent to said flange, and formed with an up-turned edge at the margin of said notch, and a U-flange fitted against and secured to said up-turned edge and said end flange.

11. A cylindrical bushing formed with a notched end and with an upturned edge at the margin of the notch, a U-flange fitted against and permanently secured to said upturned edge, and means whereby, said bushing can be removably secured within a paper-core.

12. A winding core bushing of springy

material formed with an axially parallel slot and thereby adapted to expand within a winding core and provided with means for penetrating the surface of said core so as to prevent its rotation relative to said core and also provided with an element for preventing relative rotation of the shaft or axle on which it is seated when in position for operation in winding paper, substantially as described.

In witness whereof we hereunto subscribe our signatures.

LUIGI CARLINO.
JOSEPH CARLINO.