W. F. GAMMETER.

METAL CAP FOR ROLLS.

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1,222,943.

Patented Apr. 17, 1917.

Fig. 1.

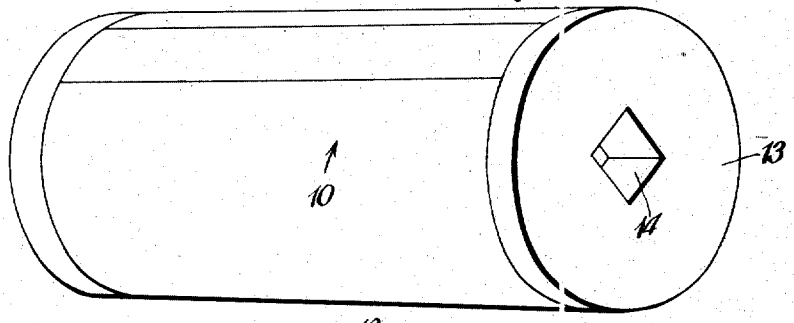


Fig. 2.

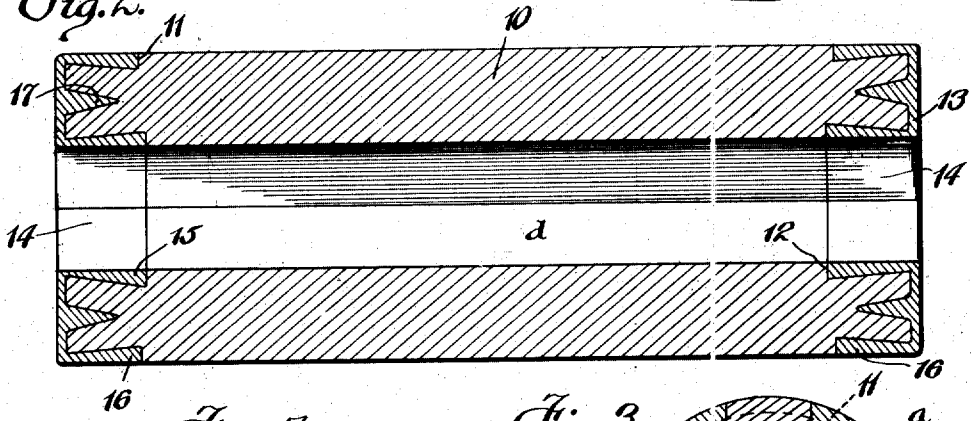


Fig. 4.

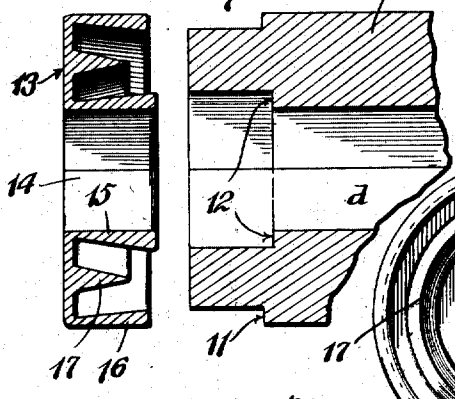


Fig. 3.

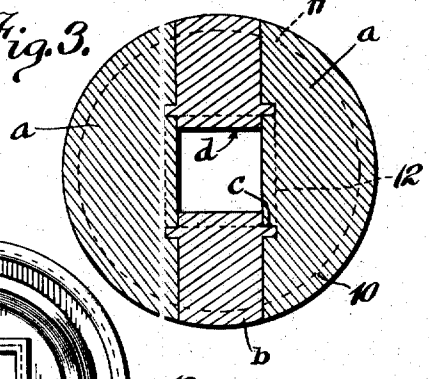
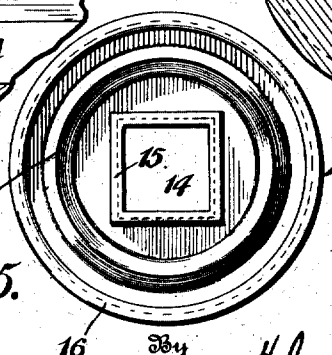


Fig. 5.



Inventor

W. F. Gammeter.

By

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM F. GAMMETER, OF CADIZ, OHIO.

METAL CAP FOR ROLLS.

1,222,943. Specification of Letters Patent. Patented Apr. 17, 1917.

Application filed August 28, 1916. Serial No. 117,272.

To all whom it may concern:

Be it known that I, WILLIAM F. GAMMETER, a citizen of the United States, residing at Cadiz, in the county of Harrison and State of Ohio, have invented certain new and useful Improvements in Metal Caps for Rolls, of which the following is a specification.

My invention relates to new and useful improvements in metal caps for textile rolls, the primary object of my invention being the provision of an improved, strong and readily applied metal cap for application to wooden rolls of composite type.

More specifically, one of the chief objects of my invention is the provision of a cap having a square tail piece adapted to engage about a mandrel and so arranged that when the caps are applied to the roll and the roll mounted upon a mandrel, the strain will be exerted directly upon the caps and transmitted from them to all portions of the roll uniformly.

Another object of my invention consists in constructing a cap of the above described character in such a manner that it wedges itself while being applied to the end of the roll and is, therefore, securely held under all conditions without the use of any separable fastening devices.

With these and other objects in view, my invention will be more fully described, illustrated in the accompanying drawings, and then specifically pointed out in the claims which are attached to and form a part of this application.

In the drawings:

Figure 1 is a perspective view of a composite wooden roll provided with my improved caps;

Fig. 2 is a central, longitudinal sectional view taken through the roll and caps;

Fig. 3 is a transverse sectional view taken through the roll itself;

Fig. 4 is a fragmentary longitudinal sectional view, showing one of the caps and one end of a roll fitted to receive such cap;

Fig. 5 is an inner plan view of the cap.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In order to insure a clear and accurate understanding of my invention I have illustrated the improved cap as employed in connection with a roll 10, preferably formed of wood in the manner best shown in Figs. 1 to 3. As there indicated, the roll is built up of a pair of outer sections *a* and a pair of intermediate sections *b* having longitudinal tongue and groove engagement with each other, as indicated at *c*. This roll is cylindrical in shape and is formed throughout its length with a central or axially extending squared bore *d*. At its ends, the roll is reduced slightly in diameter to provide an annular stop shoulder 11, best shown in Figs. 2 and 4 of the drawings and the bore *d* is enlarged to provide a squared marginal interior shoulder 12. The caps employed are of identical construction and a description of one will, therefore, suffice for both. Each cap is preferably cast in a single piece from iron or other suitable metal and includes a circular body 13 formed centrally with a squared opening 14 surrounded by a correspondingly shaped flange 15. Formed upon the same face of the body 13 of the cap as the flange 15, is an annular peripheral flange 16 and an annular intermediate flange 17, the flange 15 being preferably of somewhat greater length or depth than the flange 16 which in turn is of greater length or depth than the flange 17.

The outer face of the flange 16 is cylindrical and such flange is thickened toward its free edge. In like manner, the squared bore defined by the flange 15 is uniform in diameter but such flange is thickened toward its free edge, with the result that the inner face of the flange 16 and outer face of the flange 15 converge toward each other toward their free edges so that the space between the flanges at their free edges is less than at their points of juncture with the body of the cap. The flange 17 is wedge-shaped in cross section and in fact constitutes a wedging flange, being formed with a relatively sharp edge and adjacent its juncture with the body of the cap being of somewhat greater thickness than the change in space between the free edges of the inner and outer flanges and their juncture with the body of the cap.

The ends of the rolls to which these caps are to be applied have their reduced portions so proportioned as to pass closely through the most restricted space between the inner

and outer flanges of the caps and their enlarged bores 12 so formed as to snugly receive the larger edge portions of the inner flanges of the caps. For this reason, as will be readily appreciated from an examination of Fig. 4, the caps may be readily applied to the ends of the roll until the wedging flanges 17 engage against the roll ends. The caps may then be forced onto the rolls by a press or other suitable means until the ends of the roll engage the inner faces of the body portions of the caps and the edges of the flanges 15 and 16 engage the stop shoulders 12 and 11, respectively. This forcing home of the caps drives the wedging flanges 17 into the ends of the roll, with the result that the roll ends are split and the two annular portions thus formed are forced away from each other so that one portion is engaged between the outer flange and wedging flange and the other between the inner flange and wedging flange. Obviously, as long as the wedges remain embedded in the ends of the roll, the caps cannot be withdrawn and as the wedges are integral with the caps, it will be seen that the caps are permanently secured against displacement. The wedges could be made a little thicker at their base and the difference in distance between the outer edges of the inner and outer flanges and their points of juncture with the body portion of the caps so that in case the wood shrinks somewhat, after the caps are applied, the ends of the roll will still be wedged within the caps.

Although I have described the roll as being built up of sections and formed of wood, it will of course be understood that the roll may be constructed in a single piece, if desired, or formed of any suitable material other than wood, if deemed advisable. I therefore reserve the right to make any changes which may fall within the scope of the appended claims, without in the slightest degree departing from the spirit of my invention.

Having thus described the invention, what is claimed as new is:

1. The combination with a tubular roll, of a cap for the end of the roll including a body adapted to engage against the roll end, inner and outer flanges adapted to seat in the bore of the roll and engage about the roll end, respectively, and means between the flanges for expanding that portion of the roll end engaged between them, the inner flange being thickened externally and the outer flange internally whereby the space between their free edges is more restricted than the space adjacent their juncture with the body of the cap.

2. The combination with a wooden roll formed with a square axial bore enlarged at its ends to provide internal stop shoulders, the roll being reduced at its ends externally to provide annular stop shoulders, of caps fitted to the ends of the roll, each cap including an outer annular flange engaging about the roll end and abutting against the external shoulder, a square internal flange seating in the enlarged end of the bore and abutting against the internal shoulder, the cap being formed with a square opening constituting a continuation of the bore of the roll and the flanges being thickened whereby the space between their free edges is more restricted than the space between their portions adjacent the body of the cap, and means between the flanges for expanding that portion of the roll end seating in such space.

3. The combination with a wooden roll formed with a square axial bore enlarged at its ends to provide internal stop shoulders, the roll being reduced at its ends externally to provide annular stop shoulders, of caps fitted to the ends of the roll, each cap including an outer annular flange engaging about the roll end and abutting against the external shoulder, a square internal flange seating in the enlarged end of the bore and abutting against the internal shoulder, the cap being formed with a square opening constituting a continuation of the bore of the roll and the flanges being thickened whereby the space between their free edges is more restricted than the space between their portions adjacent the body of the cap, and means between the flanges for expanding that portion of the roll end seating in such space, said means comprising an annular wedging flange formed on the cap between the inner and outer flanges.

4. A metal cap for rolls including a circular body formed upon one face with an annular flange, the inner face of which is inclined inwardly toward its free edge, the cap being formed centrally with a square opening and with a flange surrounding the opening and projecting from the same face as the first flange, the second flange being squared and having its outer face inclined outwardly toward its free edge, and a wedging flange projecting from the face of the cap between the above mentioned flanges.

5. A metal cap for rolls including a circular body formed upon one face with an annular flange, the inner face of which is inclined inwardly toward its free edge, the cap being formed centrally with a square opening and with a flange surrounding the opening and projecting from the same face as the first flange, the second flange being squared and having its outer face inclined outwardly toward its free edge, and a wedging flange projecting from the face of the cap between the above mentioned flanges, the wedging flange being of less depth or length than the other flanges.

6. A metal cap for rolls including a cir-

cular body formed upon one face with an annular flange, the inner face of which is inclined inwardly toward its free edge, the cap being formed centrally with a square opening and with a flange surrounding the opening and projecting from the same face as the first flange, the second flange being squared and having its outer face inclined outwardly toward its free edge, and a wedging flange projecting from the face of the cap between the above mentioned flanges and at its base portion being of greater thickness than the difference in space between the first flanges at their free edges and at their points of juncture with the body of the cap.

7. A metal cap for rolls including a body having spaced concentric flanges adapted to receive between them the end of a tubular roll and further having an intermediate doubly beveled wedging flange adapted to be driven into the end of the roll, the first mentioned concentric flanges inclining toward each other toward their free edges.

In testimony whereof I affix my signature.

WILLIAM F. GAMMETER. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."