Nov. 29, 1932. E. W. BEBIE 1,889,139

CAP FOR TUBULAR BODIES OR CORES

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Fig. 1.

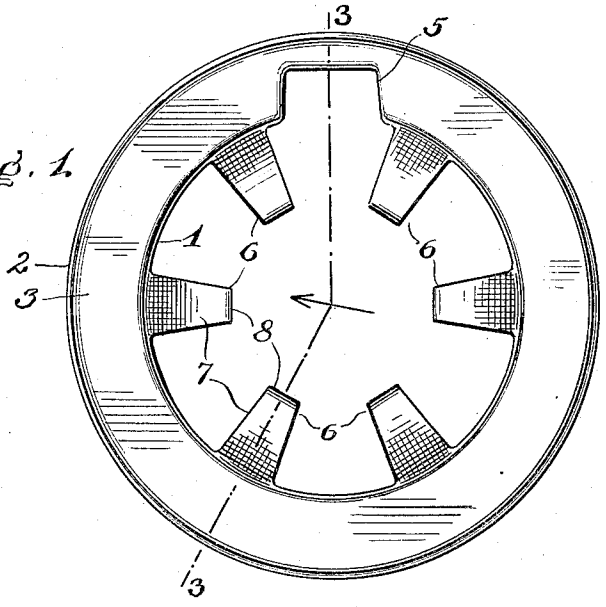


Fig. 2.

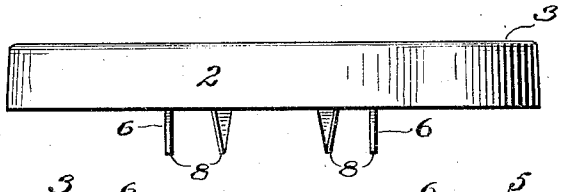


Fig. 3.

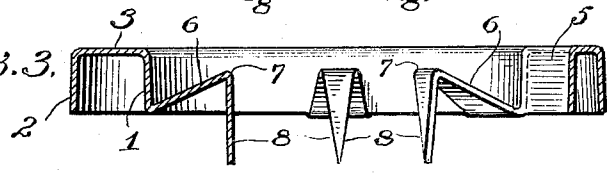
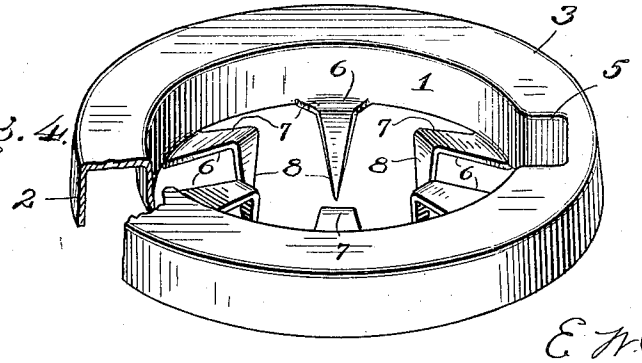


Fig. 4.



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Fig. 5.

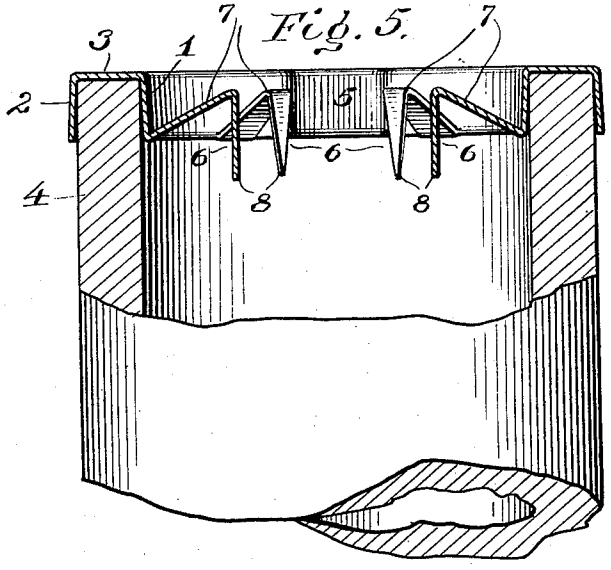
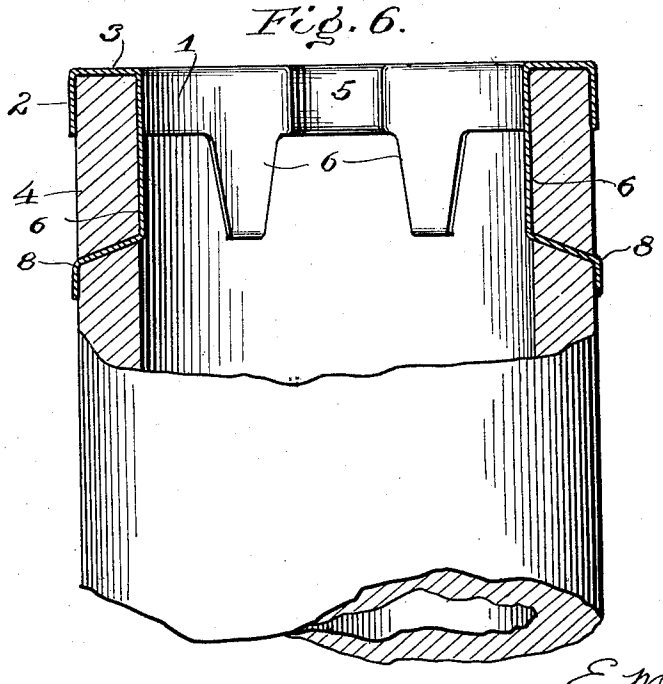


Fig. 6.



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UNITED STATES PATENT OFFICE

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CAP FOR TUBULAR BODIES OR CORES

Application filed January 2, 1931. Serial No. 506,011.

This invention relates to end caps for tubular bodies, and is designed more particularly for use in connection with hollow cores, such as are used to have wound thereon into rolls, the paper sheets produced in paper making machines, the purpose of the cap being to protect the ends of the tubular body, and when applied to cores such as above mentioned, (which are usually made of strawboard or similar material) to enable the core to withstand the weight and strain to which it is subjected when the roll is placed in a printing machine and rotated to unwind the paper; and for this purpose it is customary to provide the core cap with a stud engaging notch or indentation to be engaged by a stud on a supporting clutch or spindle in the printing press.

A core cap possessing the above characteristics is disclosed in Patent No. 1,350,531, issued on the 9th day of November, 1920, to Phillip T. Dodge, and the present invention is an improvement on the said patented construction, and has in view the saving of the expense of both the material and the labor and time of production, as well as the provision of a more effectual and firmer means for fastening the cap to the tubular body or core; and with these and other objects in view, the invention consists in the improved form and construction of parts to be described in detail in the specification to follow, and the novel features of which will be set forth in the appended claims.

In the accompanying drawings:—

Fig. 1 is a top plan view of the improved cap;

Fig. 2 is an elevation of the same;

Fig. 3 is a cross section on the line 3—3 of Fig. 1;

Fig. 4 is a perspective view of the cap;

Fig. 5 is a longitudinal section through one end of a hollow core, showing in section the improved core cap seated thereon preparatory to being fastened in place; and

Fig. 6 is a similar view showing the fastening prongs extended through the wall of the core and having their ends clinched against the side of the core;

Referring to the drawings:

Like in the patented construction referred to, the cap of the present invention comprises parallel inner and outer annular flanges 1 and 2, and an annular web 3 connecting said flanges, which web is adapted to extend along and seat against the outer end of a hollow core 4, with the two flanges extending respectively around and seated against the inner and outer sides of the wall of the core, the inner flange being bent outwardly at a point in its circumference towards the outer flange to produce a notch 5 for the engagement of a driving stud in the printing machine, when the capped core with the paper roll thereon is mounted in said machine for unwinding the paper.

In the present invention, the two flanges 1 and 2 are made of considerably less depth than that of the corresponding flanges in the patented construction, and the inner flange 1, unlike that of the patented construction, is provided with a series of fastening prongs 6 pointed at their ends and adapted to be forced through the wall of the core and clinched down thereon in the fastening of the cap to the core, as shown in Fig. 6.

The improved cap possessing the above described characteristics, may be made from a single circular piece or blank of sheet metal, and by a suitable pressing operation with the aid of dies, the center of the blank and the peripheral edge of the same are deformed to produce the two annular flanges 1 and 2 and the connecting web 3, and the center of the blank is cut out at intervals to leave the pointed fastening prongs 6, which prongs are bent so as to give them the form shown best in Figs. 3, 4 and 5, in which form they may by a simple operation be forced through the wall of the core in the fastening of the cap to the same. As shown in these figures, the prongs extend at an upward inclination from the edge of the inner flange as at 7, and have their pointed ends bent downwardly as at 8, whereby these pointed ends will extend axially of the cap; and in fastening the cap to the core, it is in this form first seated over the end of the core as shown in Fig. 5, whereby the bent prongs will be disposed on the

interior of the core, ready to be acted on to cause them to pierce through the wall of the core. With the cap so seated, the prongs are by suitable means, subjected to axial downward pressure, whereby their pointed ends will be forced downwardly and outwardly, and pivoting around the points of connection of the portions 7 with the edge of the inner flange as fulcrums, said pointed ends of the prongs will be forced outwardly laterally through the wall of the core as shown by dotted lines in Fig. 5, while the portion 7 of the prongs will be caused to lie flatly against the inner side of the interior of the core. By further operation, the protruding ends of the prongs on the outer side of the core are bent down and clinched against the side of the core so as to extend downwardly as shown in Fig. 6, thereby completing the fastening operation.

By reason of the comparatively small depth of the flanges 1 and 2, a considerable saving of material is effected over the construction of the patented type referred to; and also by reason of such reduced depth of the flanges, I am enabled with fewer operations to give the cap its proper and final form, thereby effecting a saving in time and labor in production; and by reason of the fastening of the cap in place by the fastening prongs extended through the wall of the core and clinched down thereon, a very firm and effectual fastening of the cap on the core is obtained, notwithstanding the reduced depth and consequently reduced contacting surface of the flanges with the core wall.

While it is the main purpose of the invention to provide a core cap applicable to hollow paper-roll carrying cores, to enable the same to be used in a printing machine as described, the invention is applicable as well to other tubular bodies, such as tubular conduits, in furnishing for the sections of the same which are to be connected together to form a length of conduit or pipe, protective metal end caps, whereby to facilitate the connection of the sections together as by welding or otherwise. In such use of the improved core cap, it would not of course be necessary to provide the same with the stud engaging notch 5 above referred to.

While in the foregoing description and accompanying drawings, the invention has been described in the particular detailed form which in practice has been found to answer to a satisfactory degree the ends to be attained, it will be understood that these details may be variously changed and modified by the skilled mechanic without departing from the limits of the invention; and further, it will be understood that the invention is not limited to any particular form or construction of the parts, except in so far as such limitations are specified in the claims.

Having thus described my invention, what I claim is:—

1. The improved core cap including an annular web to extend over the end of hollow core, and an annular flange connected with said web to seat against the wall of the core, said flange being provided on its inner edge with fastening prongs adapted to extend axially along the wall of the core with their terminal portions extended through said wall and adapted to have their protruding ends clinched down on the core to confine the cap thereon.

2. The improved core cap comprising inner and outer annular flanges and a connecting web, to fit over the end of a hollow core, one of said flanges being provided on its inner edge with fastening prongs adapted to extend axially along the wall of the core with their terminal portions extended through the wall of the core and adapted to have their extremities clinched down against the side of the core to confine the cap thereon.

3. The improved core cap including an annular web to extend over the end of a hollow core, and an annular flange connected with said web and adapted to seat against the interior of the core, said flange being provided on its inner edge with fastenings prongs adapted to extend for a portion of their length axially along the wall of the core with their terminal portions extended outwardly through the wall of the core and adapted to have their outer ends clinched down against the exterior of the core.

4. The improved core cap comprising inner and outer annular flanges adapted to bear respectively against the interior and exterior of a hollow core, and a connecting web to extend over the end of the core, the inner flange being continuous and provided on its inner edge at intervals with fastening prongs adapted to extend for a portion of their length axially along the wall of the core and to be extended at their terminal portions through the wall of the core and to be clinched at their outer ends against the outer side of the same to fasten the cap on the core.

5. The improved core cap comprising an annular web to extend over the outer end of the core, inner and outer annular flanges extending from the edges of said web and adapted to bear respectively against the interior and exterior of the wall of the core, said inner flange being provided at intervals with fastening prongs each having a portion extending substantially radially from the edge of the inner flange, and a terminal portion extending substantially axially of the core.

6. In combination with a hollow core, a cap therefore including an annular web to extend over the end of the core, an annular flange connected with said web and seated against the wall of the core, and fastening prongs extending axially from the inner edge

of said flange and having their terminal portions extending through said wall to confine the cap on the core.

7. In combination with a hollow core, a cap therefor comprising an annular web to extend over the end of the core, annular parallel flanges extending respectively from the edges of said web and seated respectively against the inner and outer sides of the core, and fastening prongs extending axially from the inner edge of the inner flange and hence outwardly through the wall of the core and having their projecting ends bent down thereon, thereby to confine the cap on the core.

8. The improved protective cap for tubular bodies, including an annular web to seat over the end of the body, and an annular continuous flange connected with said web to seat against the wall of the body, said flange being provided on its inner edge with axially extending fastening prongs adapted to extend at their extremities through the said wall and have their protruding ends clinched down on the body to confine the cap thereon.

9. The improved protective cap for tubular bodies comprising inner and outer annular flanges and a connecting web, to fit over the end of the body, one of said flanges being provided at its inner edge with axially extending fastening prongs adapted to extend at their extremities through the wall of the body and to have their protruding ends clinched down against the side of the body to confine the cap thereon.

10. The improved core cap including an annular web to extend over the end of a hollow core, an annular flange connected with said web to seat against the wall of the core, and fastening prongs extending axially from the inner edge of said flange and adapted to have their extremities extended into the wall of the core to confine the cap thereon.

11. In combination with a hollow core, a cap therefor including an annular web to extend over the end of the core, an annular flange connected with said web and seated against the wall of the core, and fastening prongs on the cap extending axially thereof and into said wall to confine the cap on the core.

In testimony whereof, this specification has been duly signed by:

EDWIN WILLIAM BEBIE.