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CLOSURE FOR FIBER TUBES

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Fig. 1.

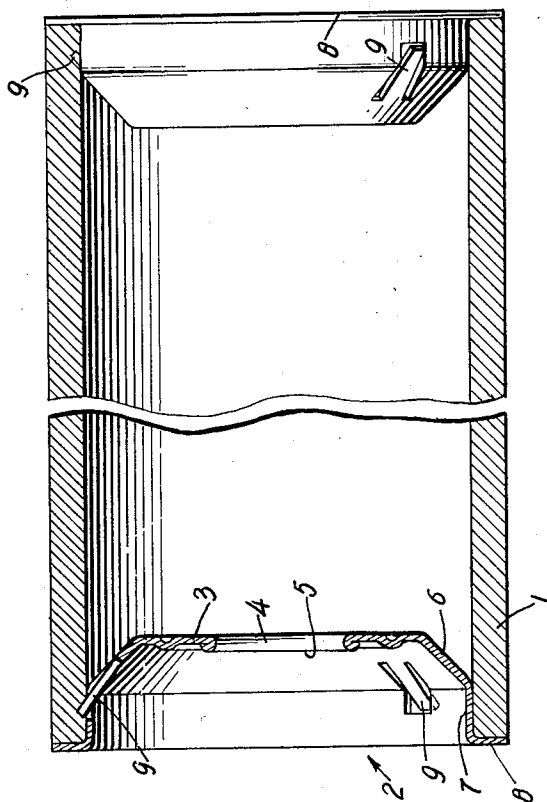
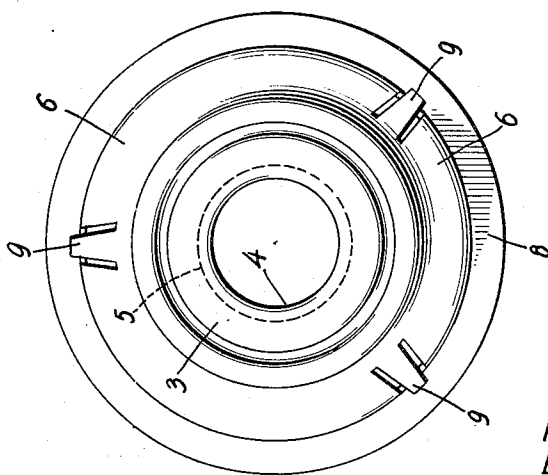


Fig. 2.



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CLOSURE FOR FIBER TUBES

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4 Claims. (Cl. 242—68)

This invention relates to closures or plugs for protecting and substantially closing the ends of fiber tubes such, for example, as the cores of paper reels.

5 It is an object of the invention to provide a closure of sheet material which can be economically manufactured and which includes integral means for locking the closure against accidental dislodgment from a fiber tube.

10 It is a further object of the invention to provide a closure of the kind referred to which may be withdrawn from the tube when desired without danger of injury to the hand of the person withdrawing it.

15 The invention is described herein as embodied in a plug for protecting an end of a paper reel core. It is understood, however, that the invention is susceptible of employment to provide closures for various forms of fiber tubes and receptacles. The description, therefore, is intended to be read as having an illustrative and not a limiting significance.

Other objects and advantages will hereinafter appear.

25 In the drawing forming part of this specification:

Figure 1 is a sectional elevation of a reel core broken away intermediate its ends for compactness, and shows at one end of the core a full view 30 of a core plug, and at the other end a sectional view of a like core plug; and

Figure 2 is a view in elevation of the inner side of one of the core plugs.

Reels of paper are ordinarily wound onto a core 35 1 of heavy cardboard. They require to be shipped from the factory to their ultimate destination where the paper is to be used. During such shipment the ends of the core, if unprotected, are apt to be dented or pressed inward, 40 unless provision is made for guarding against such injury. It is important that the core be maintained in its original cylindrical shape and undeformed, since it is necessary when using the paper from the reel to mount the core upon a 45 suitable shaft which fits the core snugly. Deformation of a core end would substantially interfere with, and possibly prevent, insertion of the shaft in the core. The core plug illustrated herein is designed to afford the requisite protection for the end of the core. The plug 2 consists 50 of a one-piece stamping of sheet metal, preferably strong, resilient metal such as steel, and comprises a body portion 3 having a central opening 4 therein around which a smooth bead 5 is 55 formed, a truncated conical portion 6, a cylindrical

cal portion 7, and an annular flange portion 8. The conical portion 6, because of its taper is adapted to facilitate entry of the plug into the end of a core, even though the core may be slightly deformed or distorted. The cylindrical portion 7 entirely fills the core and supports it so that the core is maintained in a cylindrical shape. The annular flange portion 8 covers the end of the core and prevents mutilation or deformation of the end. The flange 8 also limits the distance 60 to which the plug may be inserted in the core, and thereby avoids the possibility of driving the plug in too far and leaving the end portion of the core without protection.

In order to preclude any possibility of the plug 70 being permitted to drop out of the core by accident, provision is made of retaining tongues 9 integral with the plug. These tongues are punched from the material of the conical and cylindrical portions 6 and 7, are united at their inner ends with the conical portion, and project at their free ends for a short distance only beyond the bounds of the cylindrical portion. Being 75 of resilient material, the tongues are yieldable to permit insertion of the plug in the core, but when inserted they dig into the core sufficiently to resist any usual force tending to dislodge the plug, and ordinarily take out a small portion of the core with them when the plug is forcibly 80 extracted. Although the tongues 9 serve effectively to prevent accidental removal of the plug, they cannot prevent intentional removal thereof because the core material is sufficiently soft and yielding to permit its being gouged out by the force which a man is able to exert with his hand 85 upon the plug.

The central opening 4 in the plug body is provided in order that a finger may be inserted through it for the purpose of withdrawing the plug from the core. Since considerable force has to 90 be exerted, there would be a serious danger of cutting the finger or hand if the edges of the plug surrounding the central opening were left rough. It is accordingly a feature that the plug material bordering the opening 4 is turned outward and upset so as to form the bead 5, which 100 is smooth, and which cannot cut the finger.

We have described what we believe to be the best embodiments of our invention. We do not wish, however, to be confined to the embodiments 105 shown, but what we desire to cover by Letters Patent is set forth in the appended claims.

We claim:

1. A closure for fiber tubes, including an inner 110 body portion having a central opening there-

	through, a smooth bead surrounding the central opening, a truncated conical portion extending outward from the body portion, a cylindrical portion extending outward from the larger base of the conical portion, an annular circumferential flange at the outer extremity of the cylindrical portion, and a plurality of integral tongues united at their bases with the conical portion, and having free ends that extend outward and beyond the periphery of the cylindrical portion.	80
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10	2. A closure for fiber tubes, including an inner body portion having a central opening there-through, a truncated conical portion extending outward from the body portion, a cylindrical portion extending outward from the larger base of the conical portion, an annular circumferential flange at the outer extremity of the cylindrical portion, and a plurality of tongues united at their bases with the conical portion, and having free ends that extend outward and beyond the periphery of the cylindrical portion.	85
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20	3. A one-piece, shallow, dish-shaped, seamless, metallic closure for fiber tubes, comprising an inner body portion having a central finger opening therethrough and providing a broad, smooth, finger-engaging surface, a smooth bead surrounding the central opening, an outwardly extending cylindrical portion, tongues extending outward and beyond the cylindrical portion, and an annular circumferential flange at the outer extremity of the cylindrical portion.	90
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	4. A one-piece, shallow, dish-shaped, seamless, metallic closure formed to enter, support and guard the end of a fiber tube, comprising a cylindrical body portion, a circumferential flange at the outer extremity of the body portion for limiting insertion of the closure and for guarding the end of the tube, short, stiff, spring tongues integral at the inner ends thereof with the cylindrical portion but having their outer ends free and normally disposed outside the bounds of the cylindrical portion to bite to a limited extent into the tube fibre and thus lock the closure positively but with limited force against accidental withdrawal from the tube although permitting free insertion of the closure into the tube, and a smooth inner body portion having a central finger opening therein and providing a broad, smooth, finger-engaging surface surrounding the opening to facilitate manual extraction of the plug.	95
	HERBERT LIPPITT. EDWIN W. BEBIE.	100
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