Jan. 15, 1963 E. F. WOODLAND 3,073,546

CLOSURE FOR PNEUMATIC TUBE CARRIER

Filed Dec. 27, 1960 2 Sheets-Sheet 1

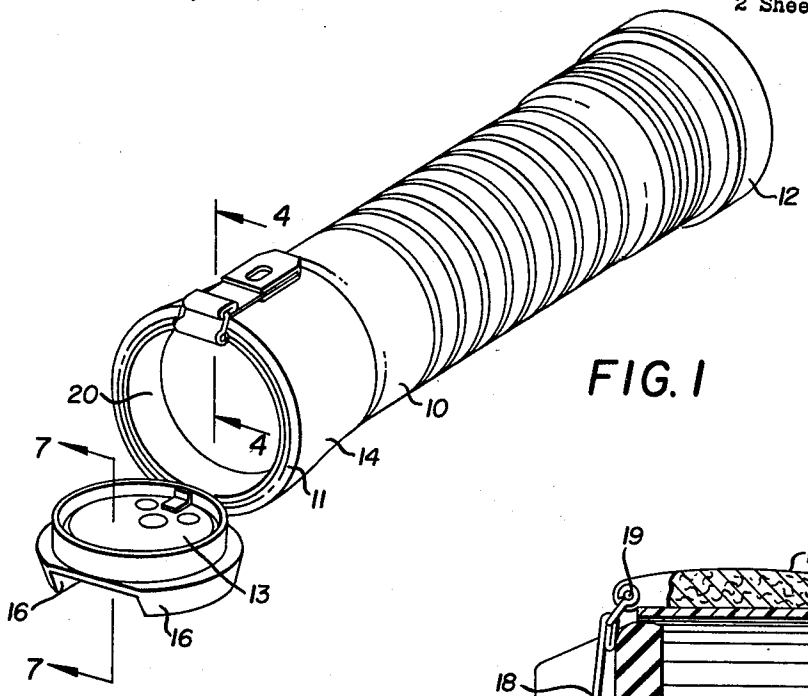


FIG. 1

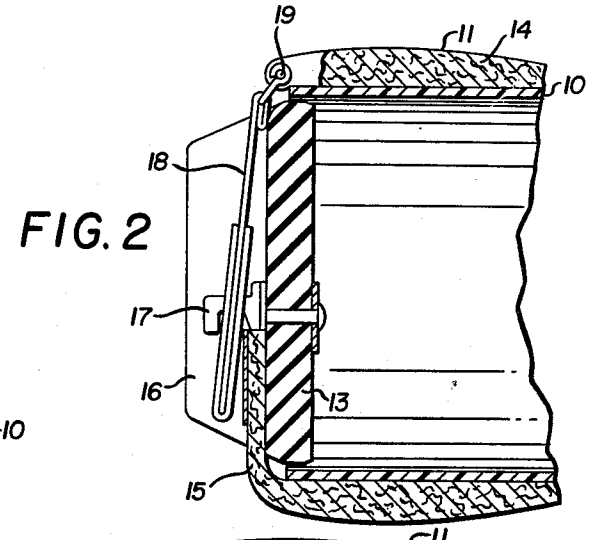


FIG. 2

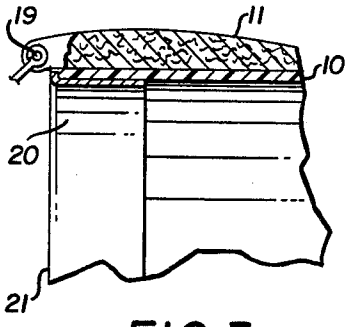


FIG. 3

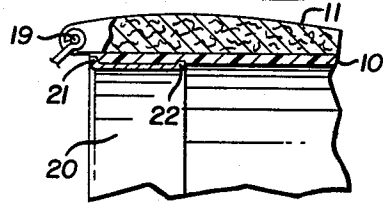


FIG. 4

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CLOSURE FOR PNEUMATIC TUBE CARRIER

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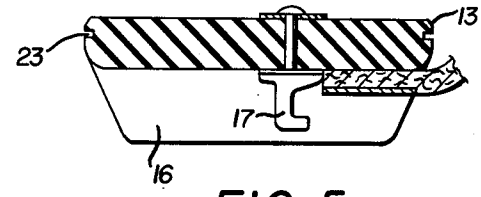


FIG. 5

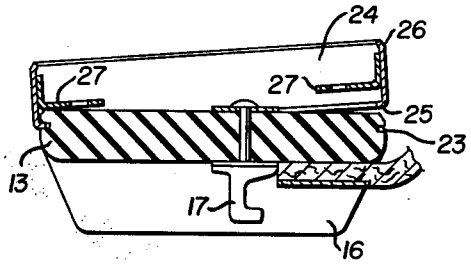


FIG. 6

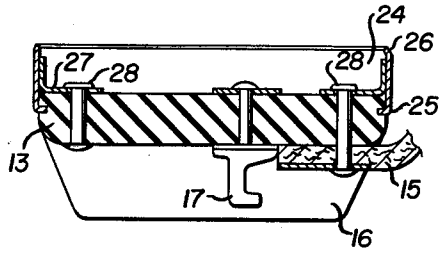


FIG. 7

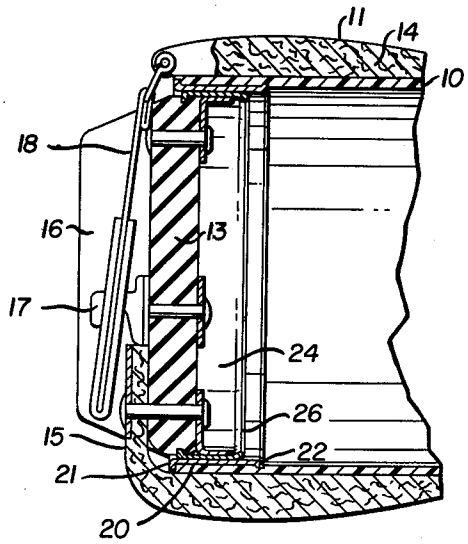


FIG. 8

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CLOSURE FOR PNEUMATIC TUBE CARRIER

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3 Claims. (Cl. 243—35)

This invention relates to a pneumatic tube carrier and more particularly to an improved closure therefor.

The principal object of the invention is the provision of a pneumatic tube carrier having a new and improved closure at one end thereof.

A further object of the invention is the provision of a pneumatic tube carrier having a resilient closure at one end.

A still further object of the invention is the provision of a pneumatic tube carrier having a resilient closure at one end and including means for holding the closure in a predetermined position relative to the carrier.

A still further object of the invention is the provision of a pneumatic tube carrier with means for adequately holding the closure of the carrier in desirable position against the carrier when the carrier is moving through a pneumatic tube and for preventing deformation of repositioning of the closure relative to the carrier.

The improvement in a pneumatic tube carrier disclosed herein comes as a solution of a problem which has existed in connection with the use of pneumatic tube carriers for many years. Such carriers employ resilient door or closure members at one end. The closure members being arranged to form a cushioning construction for the carrier and for closing the interior of the carrier to insure the retention of objects positioned therein. These closures are commonly formed as a section of molded rubber and are hinged to the carrier by a leather hinge and held in closed position by an elastic strap having an eyelet which engages a hook on the closure. The resulting construction provides an excellent cushioning construction and a satisfactory closure with respect to retaining the contents in the carrier but by its very nature it is capable of being distorted and it is capable of moving from side to side and becoming tilted relative to the axial center line of the carrier whereupon it acts as a wedge and wedges the carrier in the pneumatic tubes. This occurs frequently and it is often necessary to tear up a section of concrete floor or wall and cut open the pneumatic tube to free the carrier. This condition has existed for many years and the only solution heretofore proposed was to make the closure smaller which only resulted in the increased likelihood of its assuming an angled position and wedging the carrier in the tubes. The present invention retains all of the advantages of the rubber closure which are desirable and provides positive means for positioning and securing the closure on the open end of the carrier and completely eliminates the possibility of misalignment or improper positioning and therefore eliminates the wedging action of the closure and thus keeps the carrier from becoming stuck or wedged in the pneumatic tubes.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being the intention to cover all changes and modifications of the example of the invention herein chosen for purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

The invention is illustrated in the accompanying drawing, wherein:

FIGURE 1 is a perspective view of a pneumatic tube carrier showing the improved closure construction.

FIGURE 2 is an enlarged vertical section through a portion of the carrier and showing the closure as heretofore formed.

FIGURE 3 is an enlarged detail similar to FIGURE 2 showing the application of a collar to the carrier.

FIGURE 4 is an enlarged detail similar to FIGURE 3 showing means on the collar to hold it in position in the carrier.

FIGURE 5 is a cross section detail through the resilient closure.

FIGURE 6 is a cross sectional detail similar to FIGURE 5 showing the partial positioning of an annular flange member on the resilient closure.

FIGURE 7 is a cross sectional detail similar to FIGURES 5 and 6 showing the closure and annular flange completely assembled.

FIGURE 8 is a vertical section similar to FIGURE 2 showing the improved carrier and closure.

By referring to the drawings and FIGURE 1 in particular, a pneumatic tube carrier may be seen to comprise a cylindrical body member 10 having an enlarged front end 11 and an enlarged back end 12. The back end 12 is closed so that access to the cylindrical carrier 10 is had through the opposite open end. A resilient closure 13 is hinged to the enlarged end 11 as best illustrated in FIGURE 2 of the drawings wherein it will be seen that the enlarged end 11 is formed of an annular leather band 14, a portion of which extends forwardly therefrom as a strap 15 which is riveted to the resilient closure 13. The resilient closure 13 has a pair of oppositely disposed similarly formed forwardly extending sections 16, 16 which provide a resilient bumper for the carrier. The area between the forwardly extending sections 16, 16 provides a recessed location for a hook 17 which is secured to the closure 13, the strap 15 and an apertured elastic strap 18 which in turn is hinged by a hinge construction 19 to a portion of the leather band 14 in oppositely disposed relation to the strap 15. As illustrated in FIGURE 2 of the drawings the conventional carrier and closure thus depend upon the chance positioning of the closure relative to the carrier with the result heretofore described. The present invention positions an annular flange collar 20 as seen in FIGURES 1, 3 and 4 within the open end of the cylindrical body member 10 and with a flange 21 thereon being outturned as seen in FIGURES 3 and 4. In FIGURE 3 the flanged collar 20 is seen inserted in the body member 10 and in FIGURE 4 the inner peripheral edge 22 is seen deformed outwardly of the collar 20 and partially embedded in the wall of the body member 10 thus securely positioning the flanged collar 20 therein. The flanged collar 20 is preferably formed of stainless steel.

By referring now to FIGURE 5 of the drawings, the resilient closure 13 may be seen and in accordance with this invention it has been modified by the formation of a peripheral groove 23 therein. A secondary annular collar 24 having an inturned flange 25 on one edge and an inwardly curved opposite annular edge 26 is positioned on the closure 13 with the inturned flange 25 seated in the peripheral groove 23. Installation of the secondary collar 24 requires distortion of the closure 13 in seating the inturned flange 25 in the peripheral groove 23. A pair of apertured brackets 27, 27 are secured to the inner surface of the secondary collar 24 and as may be seen in FIGURE 7 provide means for receiving rivets 28, 28 which extend through the closure 13 and one of which is also used to secure the strap 15 thereto.

By referring now to FIGURE 8, the closure disclosed in FIGURE 7 and heretofore described may be seen installed on the carrier with the secondary collar 24 registering telescopically and accurately within the collar 20 where its positioning is facilitated by the flange 21 on

the collar **20** and by the inturned edge **26** on the secondary collar **24**. The resilient closure **13** is thus accurately and positively positioned relative to the carrier **10** despite any unequal tensions existing in the leather hinge strap **15** or the apertured elastic strap **18**. The resilient closure **13** will maintain its desired position properly presenting the forwardly extending sections **16** and thereby providing a construction which has all of the advantages of the resilient closures heretofore known in the art in connection with pneumatic tube carriers, and the additional and highly desirable characteristic of keeping the closure in its desired position so that it cannot become positioned against or wedged against the tube and thereby wedge the carrier. Having thus described my invention, what I claim is:

1. In a pneumatic tube carrier comprising a cylindrical member having a closed end and an open end and a resilient closure for closing said open end; telescopically engaging collars positioned in the open end of said cylindrical member and on one side of said resilient closure respectively and acting to position said closure against transverse movement relative to said cylindrical member when engaged.

2. A pneumatic tube carrier comprising a hollow receptacle having an outer wall, a flanged collar positioned securely in one end of said hollow receptacle, a closure for closing said receptacle, said closure comprising a resilient disc, a secondary flanged collar secured to said resilient disc about the peripheral edge thereof, a flexible hinge connected with said outer wall and said resilient member, a fastener connected with said outer wall and removably connected with said disc, said secondary flanged collar on said disc adapted to be slidably engaged within said flanged collar to position said disc in fixed relation to said hollow receptacle.

3. The pneumatic carrier set forth in claim 2 and wherein said flanged collar has an outturned peripheral edge embedded in said outer wall and wherein the flange on said secondary flanged collar has an inturned peripheral edge embedded in the peripheral edge of said resilient disc.

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