Dec. 24, 1929. J. H. MORRISON 1,740,828

SANITARY MOISTURE PROOF CONTAINER

Filed Jan. 14, 1928 3 Sheets-Sheet 1

Fig. 1

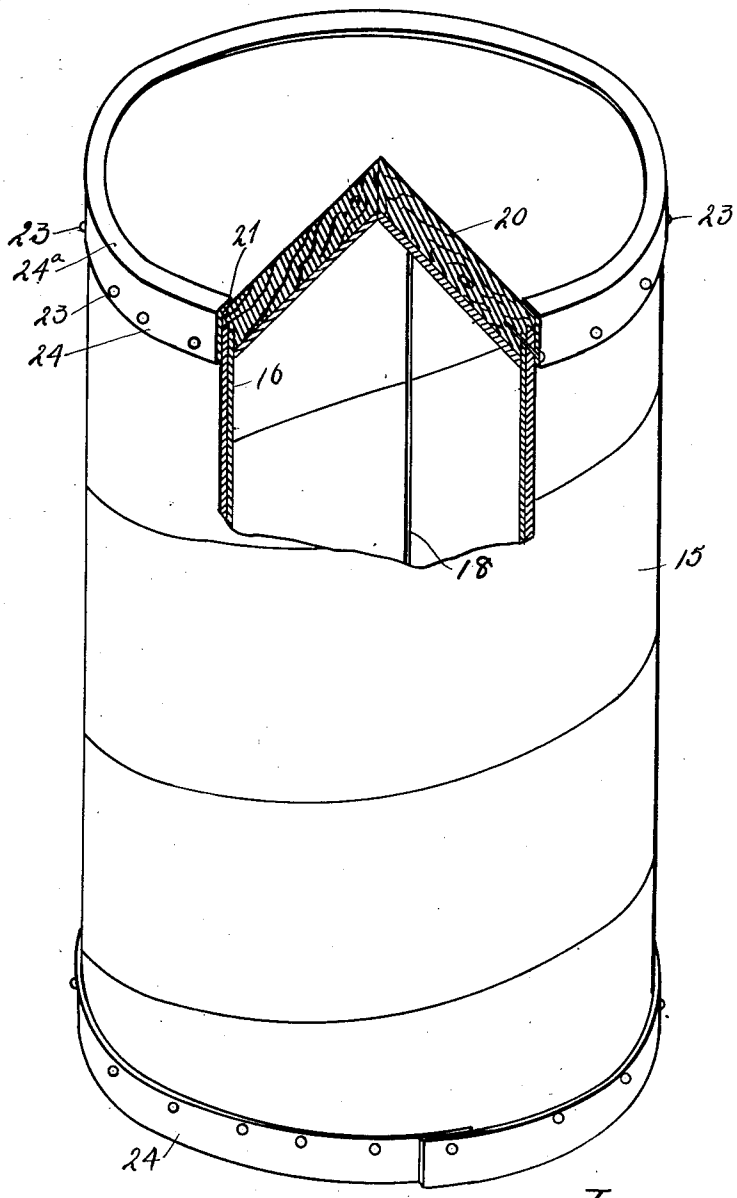

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Fig. 2.

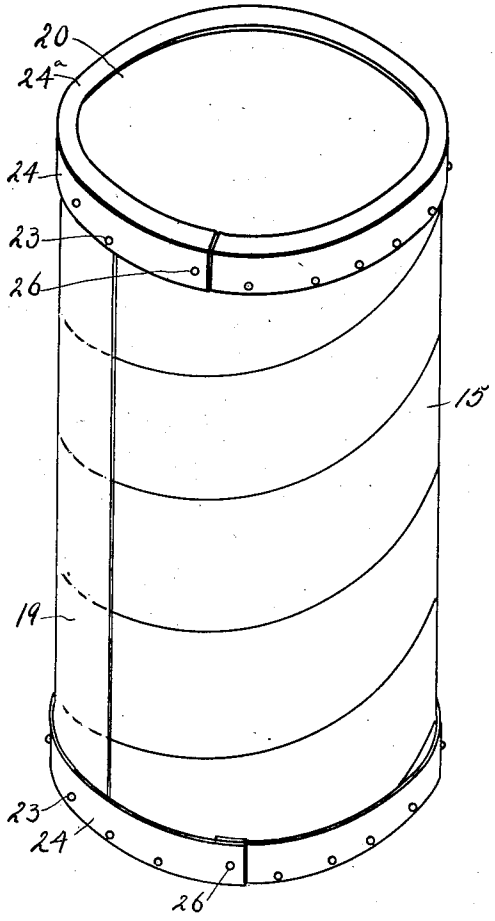

Fig. 3.

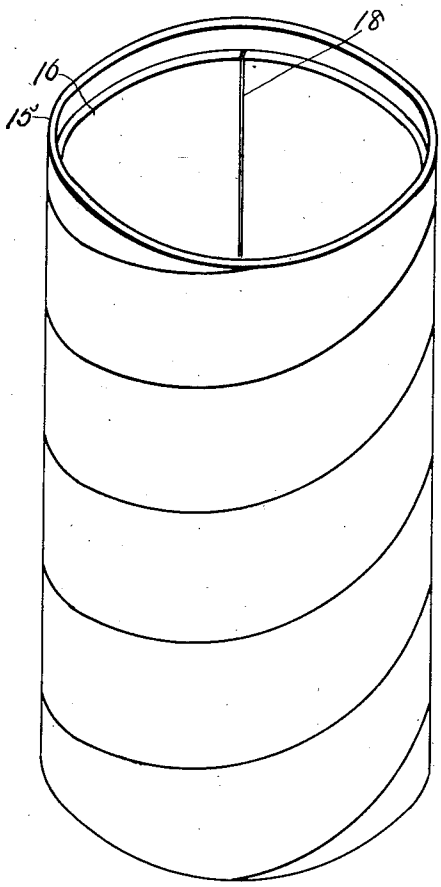

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Fig. 4.

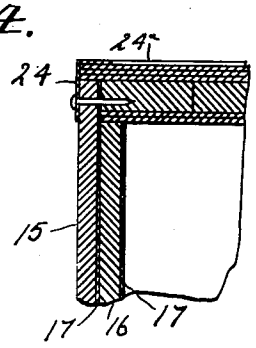


Fig. 6.

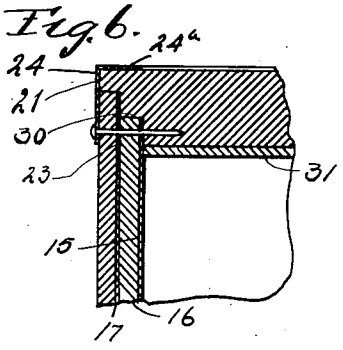


Fig. 5.

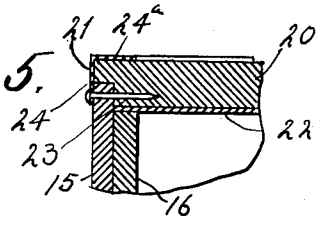


Fig. 7.

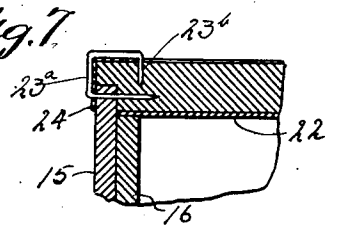


Fig. 8.

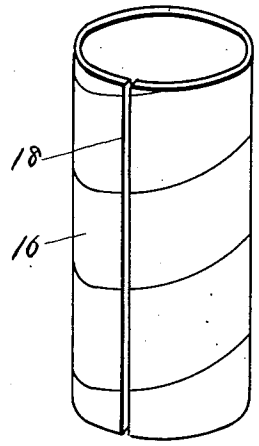


Fig 9

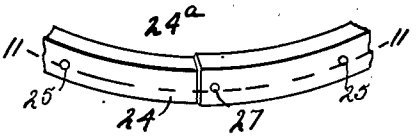


Fig 10

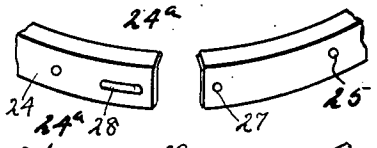
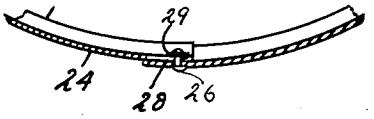


Fig 11



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Patented Dec. 24, 1929 1,740,828

UNITED STATES PATENT OFFICE

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SANITARY MOISTUREPROOF CONTAINER

Application filed January 14, 1928. Serial No. 246,666.

My invention relates to a new and useful improvement in sanitary moisture-proof containers, and has for its object to provide an outside cylindrical or other shape tube of paper, paper board or other fibrous material made of a plurality of laminations spirally rolled together under tension, and held together by a suitable adhesive; the inside layers of this tube being of wax-coated paper or paper board or of either such material without coating, while the middle and outside layers may be of moisture-proof paper or paper board.

A further object of my invention is to provide an outside or finished covering of paper or other suitable material to which suitable printing may be applied, thus providing a smooth outside surface and adding strength to the finished product.

A further object of my invention is to provide an inside split tube of the same material of which the outside tube is made, to permanently secure this inside tube in place by a suitable adhesive and to so position this inside tube as to provide for suitable covers or heads being seated upon the ends thereof, thus adding further strength to the completed container.

A further object of my invention is to provide heads for closing the ends of the container, said heads to be of such shape that they will fit within the outer portion or body of the container and rest upon the ends of both the inner and outer tubes or interposed sealing discs, thereby greatly strengthening the container especially at the ends thereof where the greatest strains are usually sustained.

A still further object of my invention is to provide a rim of suitable material preferably metal of a shape to conform to the outside diameter of the outside tube, said rim having flanges at its outer edges at right angles to the sides thereof to afford a bearing for the rim upon the outer surface of the heads of the container, said rim being of sufficient width to permit the driving of nails through the lower portion thereof in such manner that said nails will pass through the container into the heads; said rim having its ends riveted or otherwise secured together so as to have a sliding movement upon each other, thereby providing for the expansion and contraction of the diameter of the rim.

With these and other ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawings forming a part of this application, in which:

Fig. 1, is a perspective of a container made in accordance with my improvement, a portion thereof being broken away and sectioned to clearly illustrate the construction thereof and the manner of seating the heads.

Fig. 2, is a perspective view of the container on a slightly smaller scale in which the application of a finishing and strengthening layer is shown as applied to the spirally wound tube, said layer being partly broken away.

Fig. 3, is a perspective of the outside tube showing the inside tube positioned therein.

Fig. 4, is a detail section of a portion of the container showing one form of head and the manner of seating the same.

Fig. 5, is a view similar to Fig. 4, of a slightly modified form of head.

Fig. 6, is a view similar to Fig. 4, showing a still further modified form of head.

Fig. 7, is a view similar to Fig. 4 showing the manner of clinching the head in place.

Fig. 8, is a detail perspective of the inner tube after it has been cut to the right length and split.

Fig. 9, is a perspective of a portion of the rim showing the ends thereof overlapping.

Fig. 10, is a similar view showing the ends separated.

Fig. 11 is a section at the line 11—11 of Fig. 9.

In carrying out the invention, I produce the body of the container by utilizing an outer tube 15 and an inner tube 16 of paper, paper board or other fibrous material, made

of a plurality of laminations spirally rolled together, as clearly shown in the drawings, under tenison and held together with a suitable adhesive, and the inside layer 17 of these tubes, especially of the inner tube, may be wax-coated paper, paper board, or suitable water-proof sanitary material, so as to render the inner surface of the container both water-proof and sanitary while permitting the use of cheaper and less sanitary material for the outer layers of these tubes. The inner tube 16 is preferably of less length than the outer tube and is so positioned within the latter that its ends form shoulders within the end portions of the outer tube for the purpose hereinafter set forth.

For economy in manufacture and utility in structure, the inner and outer tubes are preferably made of the same diameter and the same material, the inner tube being thereafter split as indicated at 18, the slit to be of sufficient width that when its ends are butted together, this inner tube will fit snugly in the outer tube. As the inner tube is firmly glued to the inner walls of the outer tube, an exceedingly rigid container is produced only requiring relatively thin material from which the inner and outer tubes are made, since when the container is completed, the thickness of both of these tubes form walls thereof, and being laminated, gives added resistance to both external and internal strains.

In order that the spiral winding of the outer tube may not be exposed to the eye and for the further purpose of supplying a smooth regular surface for printing, I cover the outer surface of the outer tube with a layer of paper board or other fibrous material, indicated at 19, shown in Fig. 2, as a part thereof being cut away, and this additional layer of fibrous material also further stiffens the completed container, giving the latter greater strength by the cross laminations of the wall structure.

In Figs. 1 and 5, I have shown one form of head or closure 20 for the ends of the container, and this form of head consists of a disc of wood or other suitable material adapted to fit within either end of the outer tube and having an over-hanging flange 21 for seating upon the end of the outer tube. The inner surface of this head may seat directly upon one end of the inner tube or preferably a water-proof sanitary disc 22 is interposed between the inner surface and the end of the inner tube, as clearly shown in Fig. 5, and when in position is adapted to be secured in place by the nails 23 driven through the outer tube and into the lower portion of the head.

For the further securement of the head in place I provide a rim 24 of metal or other suitable material circular in shape to conform to the outside diameter of the outer tube having a flange 24^a at right angles to the vertical or body portion of the rim, said flange adapted to seat upon the upper surface of the head along the edges of the latter, and this rim has a series of holes 25 through which the nails 23 are driven, thus not only more securely retaining the head in its closed position but preventing the marring of the outer surface of the outer tube in driving said nails home, and further serving as a strengthening band to prevent the spreading of the ends of the outer tube, and further to act as a shield to protect these portions of the outer tube from undue wear and tear.

To provide for the adjustability of the rim to facilitate its adaptation to varying diameters of tubes, said rim is split and the ends thereof overlapped, a rivet 26 being passed through the hole 27 in one end of the rim and through the slot 28 through the other end thereof and the washer 29, there being sufficient play between said washer and the innerlapped end of the rim to permit a very slight movement for the contraction and enlargement of the diameter of the rim as will be readily understood.

A rim of this construction is highly advantageous in this class of work in that it may be readily passed over the head and the outer tube and then contracted so as to tightly fit both the tube and the head whereby when the nails 23 are driven home, this rim having no play will serve the purpose in a high degree of protecting the end of the tube and holding the head in place. A further advantage of this form of rim is that when it is desired to remove one of the heads from the tube, it is only necessary to draw the nails and expand the rim when the latter will be sufficiently loose to be readily removed from the container; this greatly facilitates the reuse of the container since the ends thereof nor the rim is in any way injured by the securement of the rim in place or the removal thereof.

In Fig. 6, I have shown a slight modification of the head which for some purpose is the perfect form and in this head not only the over-hanging flange 21 is utilized, but a secondary flange 30 is formed upon the periphery of said head and adapted to seat upon the end of the inner tube while the body of the head extends within the inner tube, thus permitting the driving of the nails 23 through both the outer and inner tubes and into this extended body, thus materially strengthening the ends of the containers; and in this construction a disc 31 of waxed paper, paper board or other suitable sanitary moisture-proof material, either separate from or secured to the inner surface of the head, is forced into the inner tube so as to snugly fit therein and protect the contents of the container against contamination and evaporation.

As a further means of securing the heads

and rims in place, I substitute for the nails 23 the staples 23^a, the long prong of said staple being driven through the rim and tube into the head while the short prong 23^b is riveted sufficiently to permit this operation after which the short prong is driven into the head, passing just over the inner edge of the flange of the rim, thereby clinching the parts in securement.

While the heads may be made in various ways, one of great strength, serviceability and economy in manufacture is shown in Fig. 4, in which form the body of the head is made of two or more sections of wood so placed together as to properly fit within the end of the container while a layer of laminated fibrous material such as paper board is secured upon the upper surface of this body being of greater diameter than the latter to form the overhanging flange and to the under surface of the body is also secured by glue or otherwise, similar layers of laminated fibrous material, the inner surface of which latter is intended to be moisture-proof and especially adapted to prevent contamination of the contents of the container.

While I am aware that containers made of fibrous tubing and heads for closing the ends thereof have previously been used, my invention as here set forth contemplates the production or manufacture of a container of great strength relative to the amount of material used in the production thereof, the perfect protection of the contents of such containers against evaporation and contamination, economy in cost of manufacture, the facility of which the container may be reused, and the adjustability of the rims to adapt the latter to containers of varying diameters, and therefore, my completed container as a unit is superior over all other forms of such devices.

Of course I do not wish to be limited to the exact details of construction as herein shown, as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:

1. A container comprising an outside tube and an inside tube, the latter being shorter than the former, each of said tubes consisting of layers of fibrous material spirally rolled and held together by adhesion; a head adapted to close each end of said receptacle; means for protecting the contents of the container against evaporation and contamination; and a rim for securing each head in place, said rim having its ends overlapping and so riveted together that said ends are slidable upon each other.

2. In a container comprising an outer tube, an inner tube and heads for closing the ends of said tube; of a split rim having its ends overlapping, and a rivet passed through a hole in one of the ends and through a slot in the other end whereby said rim may be varied in diameter for snugly fitting the ends of the outer tube and the heads.

3. A container comprising an outer tube of spirally wound laminations; an inner tube of less length than the outer tube, said inner tube also consisting of spirally wound laminations; the inner tube being split for placement within the outer tube, and a straight wound layer of fibrous material overlaying and covering the spiral wound layers of outer tube.

4. A body of the container comprising an outer tube of spirally wound laminations, and a super-imposed straight wound layer covering the outer surfaces of the spirally wound laminations; a split inner tube of less length than the outer tube, said inner tube being secured to the inner surface of the outer tube in such position as to leave seating recesses for closures for the ends of said tubes.

5. In a device of the character described, a hollow body; heads for closing the ends of said body; split rims; a flange formed with each rim extending at right angles thereto; the ends of each of said rims and flanges overlapping and slidably secured together; and means for securing the rims snugly against the body and the flanges tightly upon the heads.

6. In a device of the character described, a hollow body; a head for closing one end of said body, said head adapted to extend partially into the body; a rim having holes therein for the passage of nails therethrough, through the body and into the head; a right angle flange formed with the rim, the ends of said rim and flange overlapping; and a stud rivet secured in one end of the rim and projecting through a slot in the other end thereof, thereby providing for the contraction and expansion of the rim and its flange.

7. In combination with a container comprising a hollow body and a head for closing one end of said body, a split rim having holes therein, a flange formed with said rim extending at right angles thereto; and a stud rivet secured to one end of the rim and passing through a slot formed in the opposite end of said rim, whereby the rim may be caused to snugly fit the periphery of the body and the flange firmly bearing against the outer surface of the head.

In testimony whereof, I have hereunto affixed my signature.

JOHN H. MORRISON.