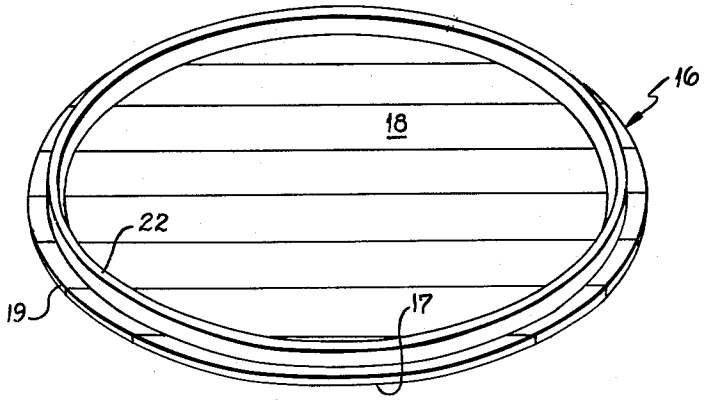
June 20, 1961 D. D. OVERTON 2,989,220

CLOSURE CONSTRUCTION

Filed March 17, 1959

2 Sheets-Sheet 1

Fig-2



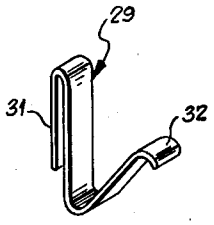


Fig-3

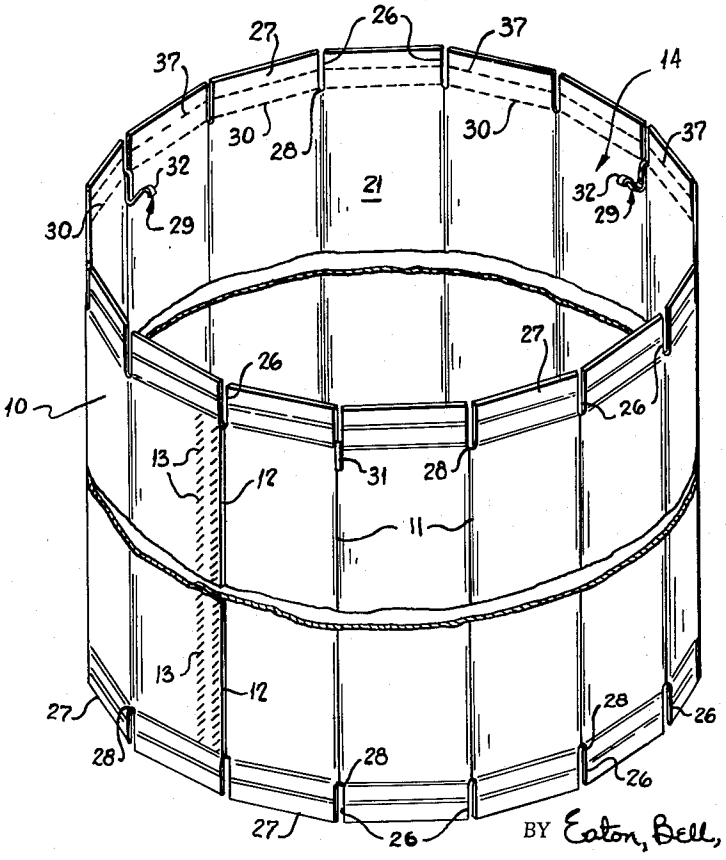


Fig-1

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June 20, 1961 D. D. OVERTON 2,989,220

CLOSURE CONSTRUCTION

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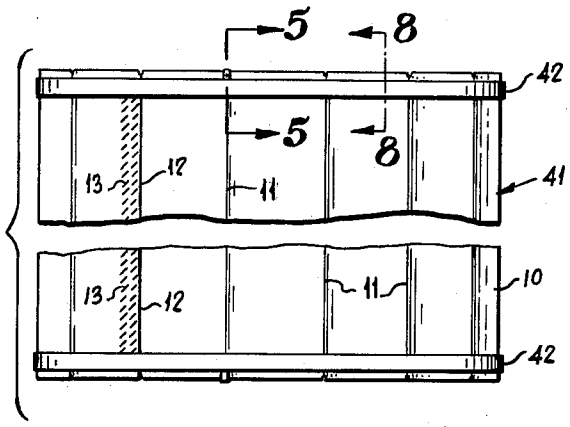


FIG. 4

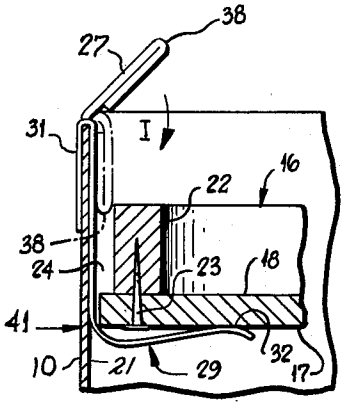


FIG. 6

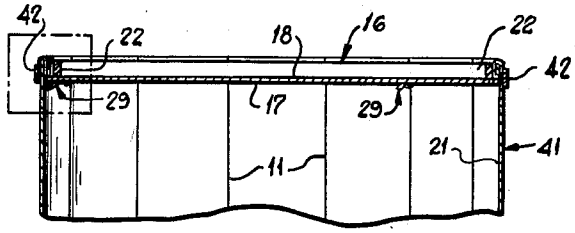


FIG. 5

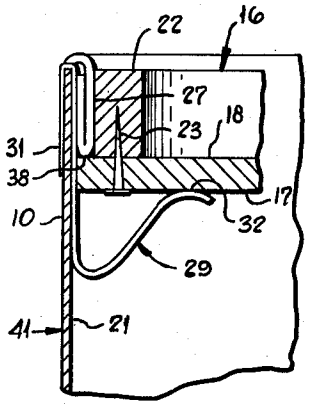


FIG. 7

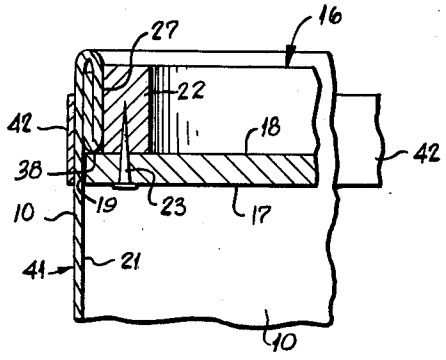


FIG. 8

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2,989,220

CLOSURE CONSTRUCTION

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Filed Mar. 17, 1959, Ser. No. 799,939
9 Claims. (Cl. 229—5.7)

This invention relates to a closure construction for a container and more particularly to a closure construction for closing the ends of large capacity tubular bodies formed from sheet material such as paperboard, fiberboard, or the like so as to form containers of the type suitable for filling with materials such as tobacco, felt, and the like.

In the manufacture of containers of relatively large capacity, it is highly desirable to provide a construction for these containers which will permit them to be easily collapsed or disassembled for shipment from the place of manufacture to the user or between any other desired two points. As can be understood, to ship such containers fully assembled in the empty condition would allow the shipment of only a few containers at a time in such transportation facilities as box cars, trucks, and the like, as a result of the large amount of shipping space which would be required. Furthermore, the larger the assembled container, the greater the shipping space required and it is essential from a cost standpoint that extremely large capacity containers such as those containers generally referred to as "hogsheads" employed to store tobacco and similar materials be constructed for easy disassembly for shipment and ready assembly at the point of utilization.

Generally speaking, these large capacity containers or hogsheads are provided with a body formed from an elongated strip of easily folded material suitably joined at the free ends to form a tubular body open at each end. These open ends are arranged to be closed by means of flat wooden end covers or heads which are arranged to be positioned in end closing relationship with the tubular body and held therein by suitable sealing means. Thus, the fiberboard from which the tubular body is formed permits the separate body to be folded into a substantially flat condition and shipped in a stacked relationship with a plurality of similarly folded bodies together with a plurality of stacked heads to be used with the bodies in a minimum of shipping space and at a relatively low cost. In this manner, a large quantity of such component parts may be shipped together for ready assembly into containers ready for filling.

It can be understood that with the large quantities of such containers, particularly in the case of hogsheads, which are utilized throughout industry, it is highly desirable that the end covers or heads be arranged for easy positioning in end closing relationship with the tubular body of the container in a minimum of time and with relatively little skill so as to permit the closure assembly to be rapidly but properly carried out. In addition, in the case of tobacco hogsheads periodic inspections must be made of the tobacco therein so that complicated and inadequate closure constructions only add to the cost of such inspections from the standpoint of both time and labor involved.

Sealing arrangements are generally provided on present day closure constructions for such containers which are designed with these objectives in mind but which in many cases are extremely complicated in construction, require many additional parts, which are relatively weak, and which do not always adequately maintain the head in the proper end closing position. Furthermore, in the construction of such containers, particularly those containers of relatively large capacity such as tobacco hogsheads,

the material, particularly tobacco, is often packed into the container under pressure and when the head is subsequently positioned in end closing relationship with the tubular body, considerable pressure is exerted on the head by the compressed tobacco tending to dislodge the head from the end closing position within the tubular body. The problem of maintaining the head in the end closing relationship with the tubular body is therefore magnified when the tubular body is constructed of materials such as fiberboard which is relatively weak and is limited as to the amount of strength available for holding the heads in the end closing position.

Accordingly, a primary object of this invention is to provide a new and novel closure construction for a container.

Another object of this invention is to provide a new and novel closure construction for positioning the end covers or heads in sealing relationship with the ends of a container having a body composed of material such as fiberboard or the like which is filled with tobacco or similar material.

A further object of this invention is to provide a new and novel closure construction for a container having a tubular body formed from material such as paperboard and having heads formed from rigid material such as wood for closing the open ends of the tubular body which permits the heads to be readily positioned in the proper end closing position and removed therefrom in a simple and rapid manner.

This invention further contemplates the provision of a new and novel closure construction for a hogshead of relatively large capacity employed for the storage of tobacco having a tubular body formed from paperboard and open at each end which is provided with means including portions of the paperboard body for releasably positioning a rigid head in closing relationship with each open end of the body.

Still another object of this invention is to provide a new and novel closure construction for a collapsible container which is simple and light in construction, inexpensive to manufacture, composed of a minimum number of parts, is characterized by outstanding strength and ruggedness and is capable of assembly and disassembly an indefinite number of times without deterioration to thereby permit continuous reuse of the container.

Still another object of this invention is to provide a new and novel hogshead for storing tobacco which is readily collapsible to permit shipment within a minimum of space with an attendant decrease in shipping cost, which may be readily assembled into a form for filling with tobacco, and which permits the tobacco to be stuffed and sealed therein under considerable pressure without danger of collapse of the container.

Briefly, the objects of the invention and other related objects are accomplished by providing a tubular body which is preferably formed from a light material such as paperboard, fiberboard or the like. The tubular body is open at each end and each end is arranged to be closed by a substantially flat, end cover or head formed from a rigid material such as wood. Support means are provided adjacent each end of the body engageable with one side of the head for supporting each head in the end closing position. In order to maintain each head in the end closing position, marginal end portions are provided on the tubular body, preferably formed integrally therewith, which are moved into engagement with the other side of the head when the head is positioned in the end closing position and thereby cooperate with the support means for fixedly positioning the head in the end closing position. Means are also provided on each head for maintaining the associated marginal end portions on the tubular body

in engagement with the other side of the head when the head is positioned in the end closing position.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

FIGURE 1 is an isometric view partially broken away of a tubular body for a hogshead which incorporates the closure construction of the invention;

FIGURE 2 is an isometric view of an end cover or head incorporated in the closure construction of the invention;

FIGURE 3 is an isometric view of support means incorporated within the closure construction of the invention;

FIGURE 4 is an elevation view, partially broken away of an assembled hogshead incorporating the closure construction of the invention;

FIGURE 5 is a partial sectional view taken substantially along line 5—5 of FIGURE 4 in the direction of the arrows;

FIGURE 6 is an enlarged view of a portion of the invention shown within the dotted lines in FIGURE 5 illustrating the closure construction of the invention in one step of its assembly;

FIGURE 7 is a view similar to FIGURE 6 showing the closure construction of the invention in the final position for closing the hogshead; and

FIGURE 8 is an enlarged sectional view taken substantially along line 8—8 of FIGURE 4 in the direction of the arrows.

Referring now to FIGURE 1, there is shown a tubular body or shell designated generally by the numeral **10** from which a container incorporating a closure construction in accordance with the invention is constructed. In the specific embodiment illustrated, body **10** is utilized in the formation of a container of the type used to package or store material such as tobacco and is generally referred to as a "hogshead."

As is well known, the body **10** is formed from sheet material such as paperboard, fiberboard or the like which is cut to a length suitable for the container capacity desired. The sheet material is preferably creased or scored by any suitable means along substantially parallel, longitudinally extending lines **11** and the tubular body **10** is formed by interconnecting the free ends of the sheet material along a joint **12** by suitable means such as staples **13** or the like. The tubular body **10** is therefore open at each end and the open upper end has been generally designated in FIGURE 1 by the numeral **14**. As a result of the score lines **11**, the body **10** may be readily folded into a flat condition for stacking with similar other bodies for shipment or storage and when the body **10** is opened up as shown in FIGURE 1, it assumes a substantially circular or polygonal cross-sectional shape.

As is well known, the tubular body **10** is arranged to receive a predetermined amount of material such as tobacco and is subsequently closed at each end by means of a substantially flat cover or head shown in FIGURE 2 and designated generally by the numeral **16**. The head **16** preferably comprises a plurality of planks and boards formed from rigid material such as wood which have been secured in lateral engagement by any suitable means to form a head of substantially circular shape having a lower or inner surface **17** and an upper or outer surface **18**. It should be understood that the head **16** may be formed in a one-piece construction from plywood or the like, if desired. It should also be understood, that although there has been shown and described only one head **16** for closing the end of the tubular body **10**, the preferred embodiment of the invention contemplates the provision of a head **16** in each end of the tubular body **10** so that each end is closed by means of the closure construction of the invention. For the purpose of clarity, however, only one head has been shown and only one closure construction will be described.

The diameter of the head **16** is preferably selected so as to permit the head to be snugly accommodated within the open end **14** of the tubular body **10** and the head contains a peripheral edge **19** which is arranged to be positioned in close-fitting relationship with the inner wall **21** of the tubular body **10** as shown in FIGURE 8. An annular flange **22** is positioned on the head outer surface **18** as shown in FIGURE 2 and is secured thereto by any suitable means such as staples **23** or the like (FIGURE 6). The flange **22** is also preferably circular in shape in a manner similar to the head **16** so that the flange is offset radially inward from the head peripheral edge **19** and when the head **16** is located in the end closing position, defines with the body inner wall **21** an annular space or recess designated by the numeral **24** in FIGURE 6.

In accordance with the novel closure construction of the invention, a plurality of radially spaced slots **26** are provided in the marginal edge portion of the tubular body **10** which are of substantially U-shaped configuration and extend preferably coincident with the crease lines **11** so as to define therebetween marginal edge flaps **27**. As shown best in FIGURE 1, the flaps **27** are uniformly spaced throughout the marginal edge portion of the tubular body **10** and are of a relatively short length so as to permit them to be folded in a manner to be explained hereinafter below the marginal end edge of the assembled hogshead defined by a fold line **30** extending circumferentially of the tubular body **10** through the bights **28** of the slots **26**.

Support means are provided for positioning the head **16** in the end closing position within the tubular body open end **14**. These support means comprise a plurality of hangers, one of which is shown in FIGURE 3 and is designated generally by the numeral **29**. The hangers **29** are preferably formed of spring steel or the like and are provided with a hook portion **31** and an extended portion or spring arm **32**. In the specific embodiment illustrated, a plurality of such hangers are employed and as shown in FIGURE 1, three of such hangers **29** are preferably utilized which are uniformly spaced 120° around the tubular body inner wall **21** with their hook portions **31** overlapping or supported on the bights **28** of the slots **26**. As shown best in FIGURES 5, 6 and 7, when the hangers **29** are hung on the bights of the slots **26**, spring arms **32** on the hangers are arranged to yieldingly engage one side, specifically the inner side **17** of head **16**, and yieldingly support the head in the end closing position of FIGURE 5.

As previously explained, when the head **16** is in the end closing position of FIGURE 5, the peripheral edge **19** of the head is positioned in close-fitting relationship with the tubular body inner wall **21**. In order to securely maintain the head **16** in the end closing position of FIGURE 5 when the body **10** is filled with material such as tobacco, each of the flaps **27** is arranged to be folded radially inward along a fold line **37** intermediate the fold line **30** and the flap outer edge in a two ply relationship to form a folded edge **38** as shown in FIGURE 6. The folded flap **27** is then subsequently folded along fold line **30** in the direction of arrow I until the folded flap **27** is positioned in overlying relationship with the tubular body inner wall **21**.

As can be seen in FIGURE 6, the fixedly mounted annular flange **22** on head **16** would prevent the above-described folding of flap **27** when the head **16** is supported on the hanger spring arm **32** and the spring arm **32** is in the relaxed condition of FIGURES 1, 3. However, the flange **22** may be removed from the path of the flap **27** during folding as a result of the yielding action of the spring arm **32** by forcibly moving the head **16** into the interior of the tubular body **10** into the position of FIGURE 6 against the upwardly urging force of the spring arm **32**. When the head **16** is moved in this manner, the spring arm **32** is pressed downwardly and the flap **27** will clear the flange **22** as the flap is folded into the dotted line position of FIGURE 6.

When the head **16** is released and permitted to move upwardly under the urging force of the spring arm **32** which may be aided by the force of the packed material or tobacco within the body **10**, the flange **22** moves up along the folded flap **27** until the head upper or outer surface **18** engages the edge **38** on flap **27**. The folded flap **27** is then nested within the space **24** between the flange **22** and the tubular body inner wall **21**. The head **16** is therefore securely clamped in the end closing position between the spring arms **32** of hangers **29** and the lower edge **38** of the flap **27**. The folded flap **27** is maintained in the folded condition in the annular recess or space **24** by its engagement with the flange **22**. Furthermore, the head **16** is yieldingly held against movement from the end closing position into the interior of the tubular body by the hanger spring arms **32** and out of the end of the tubular body by means of the folded flap edge **38**.

When the heads **16** have been positioned within each end of the tubular body **10** to form a container or hogshead designated generally by the numeral **41** in FIGURE 4, peripheral straps or bands **42** of conventional construction are secured as shown in FIGURES 4, 8 in binding relationship around the tubular body **10** and preferably extend over the part of the hook portions **31** of hangers **29** which lie on the outer peripheral surface of the hogshead **41**. Thus the hogshead **41** is securely held in the completely assembled, closed condition.

As previously discussed, periodic inspection is required in hogsheads of the type described which contain tobacco or similar material and this inspection may be easily accomplished by an inspector who need only push the head **16** into the tubular body **10** to the extent shown in FIGURE 6 against the force of the hanger spring arms **32** and the force, if any, of the tobacco packed therein so as to permit the flap **27** to be unfolded and the head to be withdrawn from the end of the container. The packed material may then be inspected in the hogshead or the material may be removed from the hogshead for inspection. After the inspection is complete, the inspector may once again repeat the above described steps of assembly for the closure construction by reinserting the head **16** within the open end **14** of the hogshead against the force of the hanger spring arms **32** and refold the flap **27** into the folded condition of FIGURE 7, subsequently releasing the head **16** so as to clamp the folded flap **27** between the flange **22** and the tubular body inner wall **21**. For convenience, the bands **42** may be removed if desired, during the inspection of the contents of the hogshead **41**.

It can be seen therefore that there has been provided with this invention a closure construction for a container of the type commonly referred to as a hogshead for storing tobacco and similar material which may be constructed from a minimum of material and which permits a portion of the shell or tubular body of the hogshead to serve as part of the closure construction for closing the ends of the hogshead. Not only is such a closure construction relatively inexpensive to manufacture but the heads may be secured in the end closing position with a minimum of effort and by relatively unskilled labor without the risk of misalignment and the like. Furthermore, periodic removal ad replacement of the head for inspection purposes may be made in a simple and easy manner without deterioration or damage to the closure construction and with a minimum of time and labor. The closure construction of the invention produces an outstanding arrangement for closing hogsheads while at the same time is sufficiently rugged so as to maintain the heads in the closing position during rough handling and the like.

In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. A closure construction for a container comprising, in combination, a tubular body having an inner wall, a substantially flat head closing one end of said tubular body, support means on said tubular body engaging one side of said head and yieldingly supporting said head in end closing position, marginal end flaps on said tubular body, said flaps being folded radially inward and engaging the other side of said head when said head is in end closing position, an upstanding flange on the other side of said head and spaced inwardly of said inner wall to define a recess therebetween, and said flaps being received in said recess in clamped relationship between said inner wall and said flange when in folded condition.

2. A closure construction for a container comprising, in combination, a tubular body substantially circular in cross-section and having an inner wall, a substantially flat, circular head closing one end of said tubular body, support means on said tubular body engaging one side of said head and yieldingly supporting said head in end closing position, marginal end flaps on said tubular body, said flaps being folded radially inward and engaging the other side of said head when said head is in end closing position, an upstanding annular flange on the other side of said head and spaced inwardly of said inner wall to define an annular recess therebetween, and said flaps being received in said annular recess in clamped relationship between said inner wall and said annular flange when in folded condition.

3. A closure construction for a container comprising, in combination, a tubular body having an inner wall, a head for closing one end of said tubular body, a plurality of radially spaced hangers supported adjacent the end of said tubular body, each of said hangers having a spring arm extending radially inward for yieldingly supporting said head on one side in said end closing position, marginal end flaps on said tubular body, said flaps being foldable radially inward for engagement with the other side of said head when said head is in said end closing position, and an upstaning flange on the other side of said head defining with said inner wall a space for receiving and clamping said flaps in the folded condition.

4. A closure construction for a container comprising, in combination, a tubular body having an inner wall, a head for closing one end of said tubular body, a plurality of radially spaced, longitudinally extending slots in the marginal edge portion of said tubular body, said slots being arranged to define a plurality of flaps, a plurality of hangers each having a hook portion for supporting said hanger on the bight of said slot, a spring arm on each of said hangers for yieldingly supporting said head on one side in said end closing position, said flaps being foldable radially inward in overlying relationship with said inner wall to provide an edge engageable with the other side of said head when said head is in said end closing position, and an upstanding flange on the other side of said head defining with said inner wall a space for receiving and clamping said folded clamps, said spring arms on said hangers being arranged to yield when said head is moved a limited extent into said tubular body from said end closing position and thereby provide clearance for folding said flaps.

5. A closure construction in accordance with claim 4 wherein each of said flaps is folded in a two-ply relationship.

6. A closure construction for a container comprising, in combination, a tubular body polygonal in cross-section and having an inner wall, a substantially flat, circular head arranged for close-fitting association with said inner wall for sealing one end of said body, a plurality of longitudinally extending, U-shaped slots arranged in uniform, radially spaced relationship in the marginal edge portion of said body, said slots thereby defining a plurality of flaps, a plurality of hangers associated with a

selected number of said slots and uniformly spaced throughout said plurality of slots, each of said hangers having a hook portion for supporting said hanger on the bight of a slot adjacent said inner wall, a spring arm on each of said hangers arranged to extend radially inward from said inner wall when hanger is in said supported position for yieldingly supporting said head on one side in said end closing position, said flaps being foldable radially inward of said body in a two-ply relationship and in overlying relationship with said tubular body inner wall to provide an edge engageable with the other side of said head when said head is positioned in said end closing position, and an upstanding annular flange secured to the other side of said head defining with said inner wall an annular space for receiving and clamping said folded flaps, said spring arms on said hangers being arranged to yield when said head is moved a limited extent into said tubular body from said end closing position and thereby provide clearance for folding said flaps.

7. A closure construction for a container comprising, in combination, a tubular body provided with at least one open end, a head closing said one open end of said tubular body, a flange on said head extending transversely with respect thereto from one of the surfaces thereof, said flange being spaced inwardly of said tubular body to

define a recess therebetween, means on said tubular body extending inwardly thereof in underlying engagement with one of said flange and the other surface of said head and supporting said head in end closing position, marginal end flaps on said tubular body adjacent the open end thereof, and said flaps being folded inwardly of said tubular body and being received in said recess in clamped relationship between said tubular body and said flange.

8. A closure construction as defined in claim 7, wherein said means comprises a plurality of hangers having inwardly extending spring arms, said hangers being spaced about the periphery of said tubular body and supported thereon adjacent the open end thereof, and said spring arms underlying one of said flange and the other surface of said head in engagement therewith to yieldingly support said head in end closing position.

9. A closure construction as defined in claim 7, wherein said flange extends transversely from the outer surface of said head, and said means engages the inner surface of said head to support said head in end closing position.

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