

[54] **DRUM-LIKE CONTAINER OF
TELESCOPING TYPE SET-UP FROM
FOLDED FLATS OF SHEET MATERIAL**

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[58] Field of Search. **229/4.5, 5.5, 5.6, 5.7, 5.8**

[56] **References Cited**

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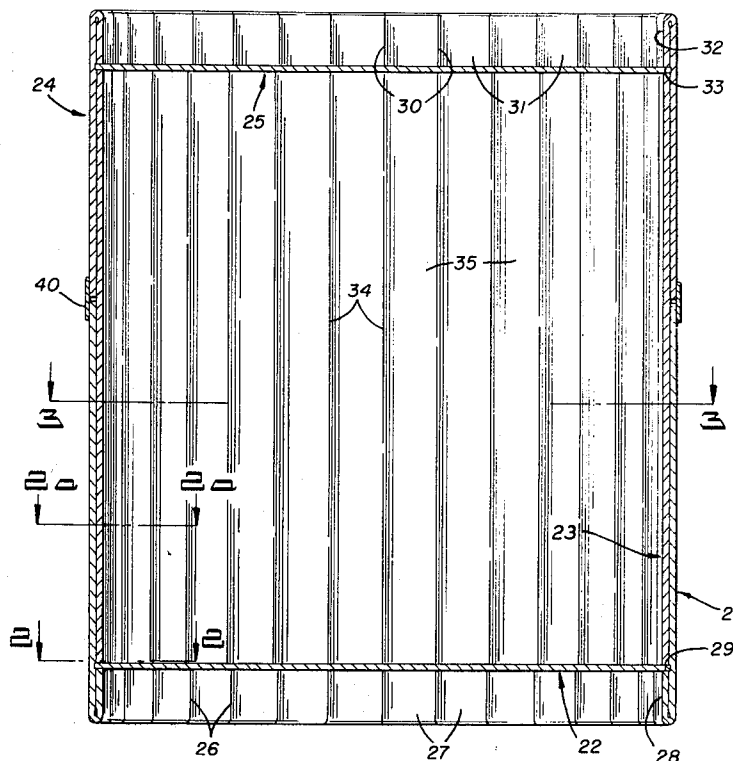
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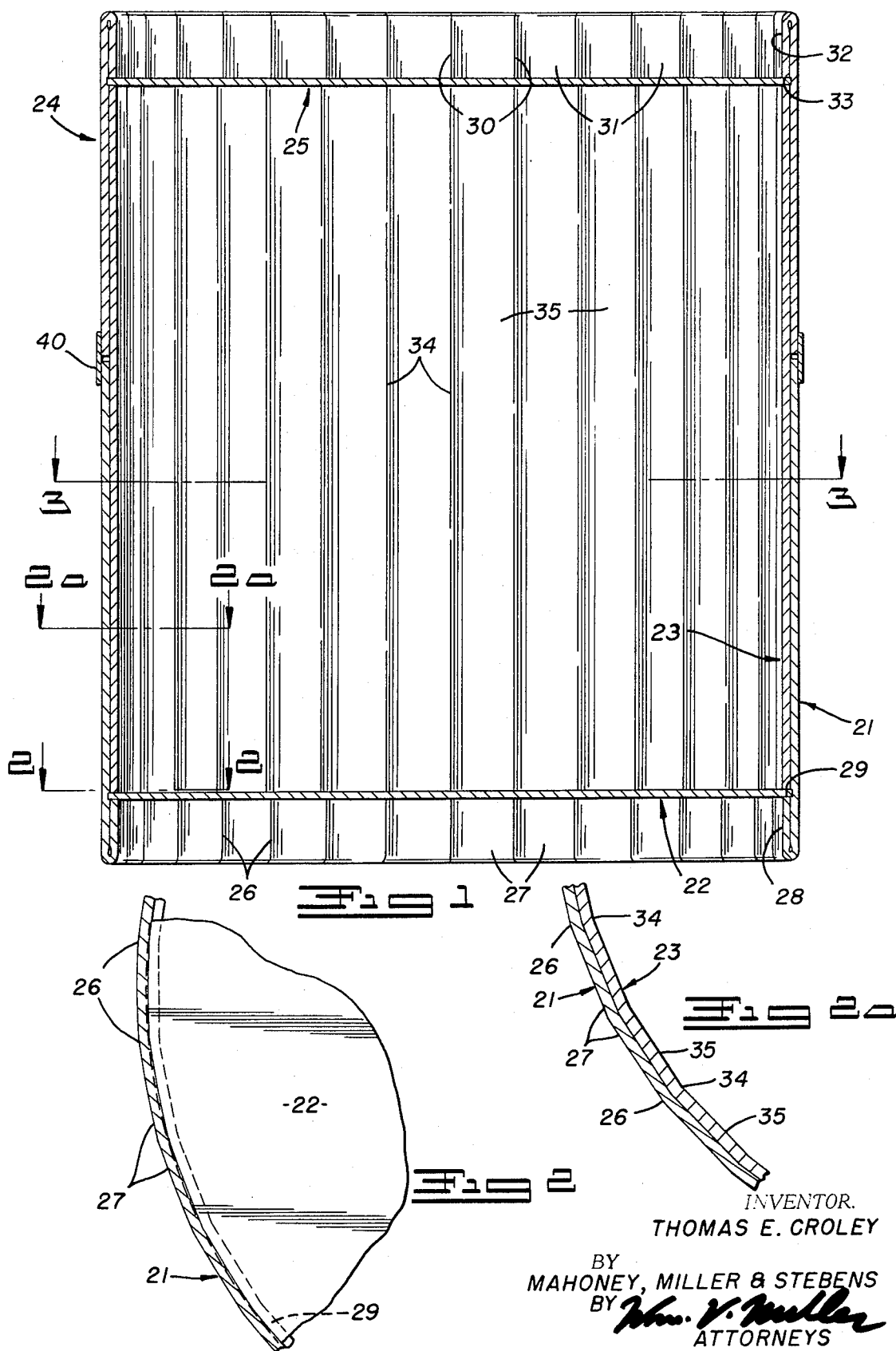
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[57] **ABSTRACT**

A drum-like container comprising upper and lower bodies of substantially drum-like form telescopically interfitting. Each of the bodies is set up from one or more flat blanks of sheet material which is scored to provide a plurality of panels connected together at scored vertical fold lines. One horizontal edge of a blank for the upper or lower body is turned inwardly to provide an axially inwardly flange providing a shoulder at its inner extremity. The respective ends of the blank are laterally overlapped and secured together at a vertical seam. The blank is folded flat about two of the vertical fold lines to provide superimposed sections, each section consisting of a plurality of connected vertical panels. This folded and collapsed flat can be expanded into polygonal tubular form with upper and lower open ends and with the inwardly disposed shoulder at one end. To maintain the tubular form, a rigid disc of proper diameter is moved axially into and tightly fitted therein in contact with the shoulder.

10 Claims, 8 Drawing Figures

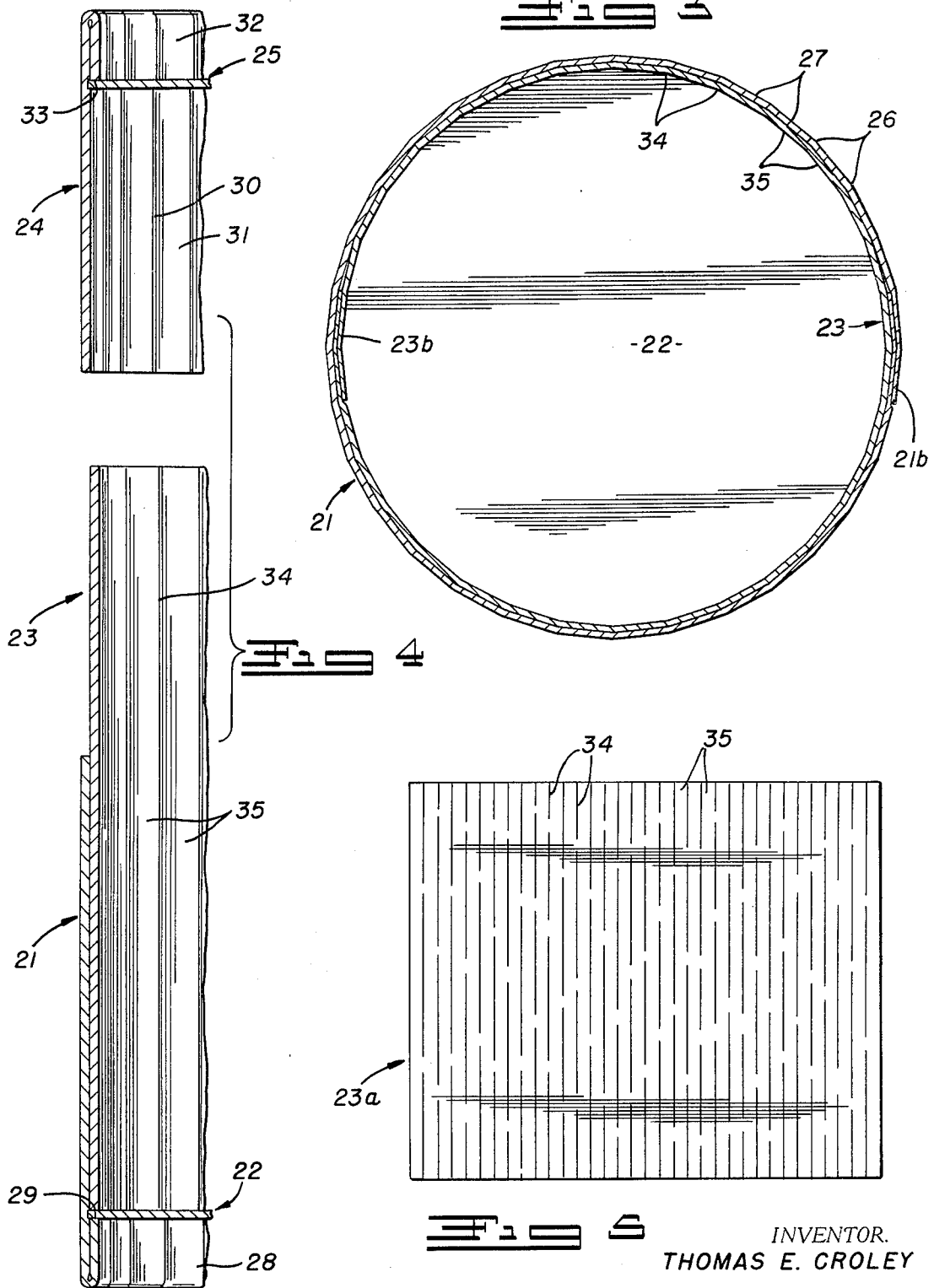




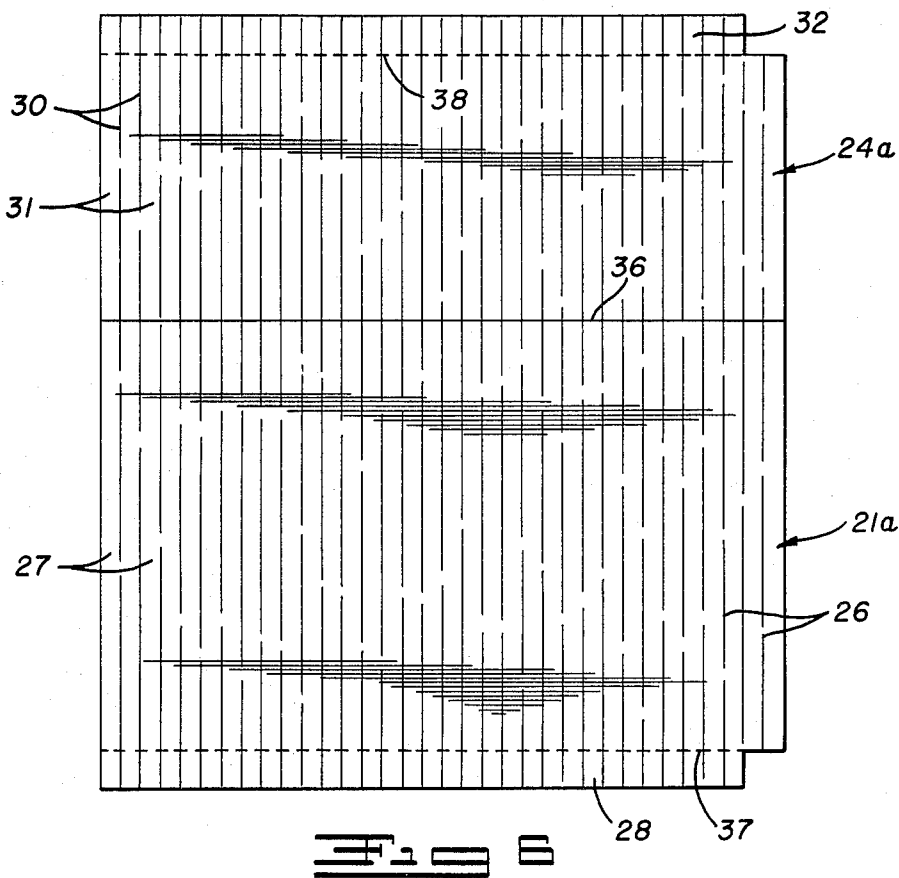
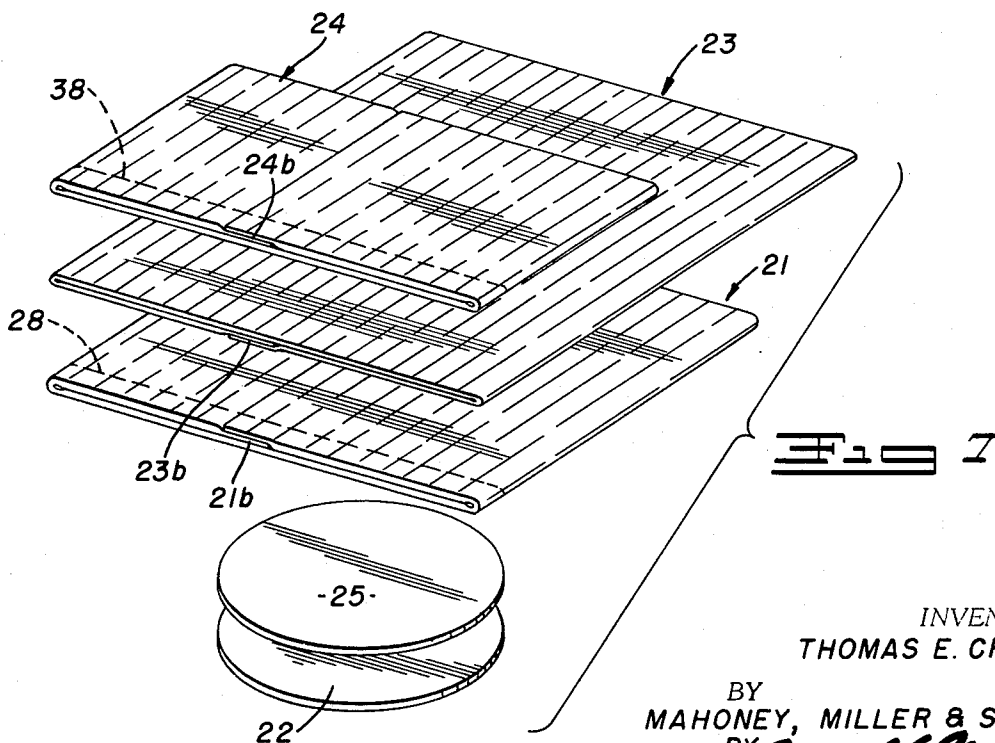
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DRUM-LIKE CONTAINER OF TELESCOPING TYPE SET-UP FROM FOLDED FLATS OF SHEET MATERIAL

At the present time, there is a well-known type of container made which is called a fiber drum or barrel of the telescoping type. This is a container which usually has lower and upper cylindrical bodies that fit together in telescopic relationship. Each cylindrical body is ordinarily made of laminations of paper or fiberboard, generally spirally or helically wound convolutions and having a disc-like end closure at one end.

This type of prior art drum has many advantages, as is well known in the art. However, one great disadvantage is the space these drums occupy in storage and shipment. Another great disadvantage is their cost.

This invention provides a telescoping type drum similar to the usual telescoping fiber drum or barrel which is supplied in knocked-down form as a group of parts, consisting of collapsed folded flats and cooperating flat end discs, which can be set up easily to provide the upper and lower substantially cylindrical bodies which will telescope to provide a complete drum-like container.

The structure of the present invention, which is supplied to the user as folded or collapsed flats and cooperating discs, has all the advantages for shipment and storage of the usual collapsed folded fiberboard box flats. However, when expanded and set up, the resulting telescopic container has the advantages of the usual telescopic fiber drum as to strength, easy handling, stacking, etc. and is substantially less costly.

According to this invention, each drum-like container body is made from corrugated fiber board, solid fiber board, paper board, or other material capable of being scored and folded. Each body is made from one or more blanks of such material. The blank is scored to provide a plurality of panels which fold relatively at vertical score lines, a large number of sides or panels being preferred so that when set-up, the body will approach a circular drum-like form, as much as possible, but will still be made of the plurality of the panels connected at the vertical scored fold lines. Two or more of the adjacent vertical panels, which will be at the respective ends of each blank, will be disposed in laterally overlapping relationship and be secured together to provide a lapped vertical seam or joint. The upper or lower horizontal edge of the blank is folded inwardly to provide an overlapping flange having a shoulder at its inner extremity. This structure, before setting up, will be in a collapsed folded flat condition, being folded about two of the vertical fold lines to provide superimposed flat sections, each having a plurality of vertical panels connected together at the vertical fold lines. This structure will be referred to herein as a flat. When set-up into polygonal tubular form with upper and lower open ends, the tube will receive a substantially rigid disc of such a diameter that it will snugly fit the tubular body, as it is moved axially into the body into contact with said flange shoulder and to maintain that tubular form. If desired, both bodies may be of identical cross-section and to form the telescopic connection between the lower and upper bodies, a similar liner flat may be inserted in the lower body with its lower end in contact with the bottom disc. The liner flat, when expanded as a tube, will be of a polygonal cross-section complementary to that of the tubular wall of the lower body and will project out of the upper end thereof so that the upper body can be slipped axially thereon, being complementary thereto, until the upper edge of the liner tube contacts with the disc of the upper body. The liner tube being of a cross-section complementary to the tubular wall of the lower body will be maintained in expanded polygonal tubular form until it receives the complementary upper body.

Instead of providing a liner in the lower body, the upper cap body can be made of slightly greater cross section than the lower body so that it telescopically slides over the lower body and is complementary thereto.

The best mode contemplated in carrying out this invention is illustrated in the accompanying drawings in which:

FIG. 1 is a vertical sectional view through a drum-like container of the telescoping type formed according to this invention.

FIG. 2 is a partial horizontal sectional view taken substantially along line 2—2 of FIG. 1.

FIG. 2a is an enlarged partial horizontal sectional view taken along line 2a—2a of FIG. 1.

FIG. 3 is a horizontal sectional view taken substantially along line 3—3 of FIG. 1.

FIG. 4 is a partial vertical sectional view through the container of FIG. 1 showing the top body or cap removed.

FIG. 5 is an elevational view illustrating the liner blank.

FIG. 6 is an elevational view indicating a blank which is separated into the upper cap blank and the lower body blank.

FIG. 7 is a perspective view illustrating the group of flat parts which are supplied for producing the assembled container of FIG. 1.

With specific reference to the drawings, in FIG. 1, one example of a finished set-up drum-like container embodying this invention is illustrated and includes the polygonal tubular lower body or base 21 having a bottom closure disc 22 and an open upper end, the complementary polygonal tubular liner 23 having both ends open with its lower end resting on the disc 22 and projecting up out of the base 21, and the polygonal tubular body or cap 24 having an upper closure disc 25 and being inverted over the upper extending end of the liner 23 into telescoping relationship thereto, with the upper end of the liner 23 contacting the upper disc 25. The base 21 and the cap 24 are of identical construction except that the cap is shorter than the base in an axial direction. The liner 23 is of similar formation but is of slightly less circumferential extent so that it will complementally fit within the base 21. It is apparent that the liner 23 is of greater axial extent than either the base 21 or the cap 24.

Each of the members 21, 23 and 24 is of angular or polygonal tubular cross-section, produced from sheet material, with vertical scored fold lines formed therein at circumferentially spaced intervals to provide vertical panels connected together at these scored lines. Thus, the base 21 is provided with vertical score lines 26 to form the vertical panels 27. At its lower end, the material of the base 21 is turned upwardly and inwardly to provide the flange 28 which has a continuous shoulder 29 at its innermost extremity. The disc 22, which is substantially rigid, rests on the shoulder 29. The cap 24 is similarly formed with the vertical score lines 30 to form the vertical panels 31. At its upper end, the material of the cap 24 is turned downwardly and inwardly to provide the flange 32 which has a continuous shoulder 33 at its innermost extremity. The disc 25, which is substantially rigid, engages with the shoulder 33. The liner 23 is similarly provided with the vertical score lines 34 to form the vertical panels 35. However, its lower and upper ends will not be turned, but will engage with the upper and lower surfaces, respectively, of the respective lower and upper discs 22 and 25. The size of each disc 22 and 25 is selected so that its circumference is equal to the peripheral extent of the disc-receiving tubular polygonal body at its inner surface.

Each of the members 21, 23 and 24 is produced in the form of a flat folded blank from a sheet of suitable material which, as previously indicated, is a sheet of material capable of being scored and folded. According to this invention, the material is preferably corrugated fiber board, but may be solid fiber board, paper board or other suitable material which is cut to the proper outline and size and is suitably scored. Thus, in FIG. 5, I have illustrated a liner blank 23a of suitable sheet material provided with the vertical score lines 34 to produce the narrow vertical panels 35. Similarly, in FIG. 6, I have illustrated how a single sheet may be used to produce the flat blanks 21a and 24a for the respective bodies 21a and 24a. The sheet may be separated at the horizontal cut 36. The blanks 21a will have the vertical score lines 26 to produce a plurality of narrow vertical panels 27 and the blank 24a will have the vertical score lines 30 to produce the narrow vertical panels 31. The panels 35 will be of slightly less width than the panels 27 and 31. The blank 21a will be provided with the horizontal score line 37, parallel to its lower edge, to provide for folding

and forming the flange 28 and the blank 24a will be provided with the horizontal score line 38, parallel to its upper edge, to provide for folding and forming the flange 32. Each of the flanges 28 and 32 is omitted from one or more of the panels at the end of its respective blank so as to facilitate lateral overlap of the ends of the respective blanks in forming them into the folded flats shown in FIG. 7. Each blank will be provided with an overlapping vertical seam 21b and 24b and the liner blank will be provided with an overlapping vertical seam 23b. The overlapping vertical panels at these seams may be crushed so that each will be of a total thickness equal to that of adjacent panels. The overlapping panels are preferably glued or otherwise secured together, as are the flanges 28 and 32 and the surfaces underlying such flanges. The discs 22 and 25 may be of corrugated or other fiber board material or may be of other material, such as plastic or metal, but are preferably substantially rigid.

When each ends of the blanks is folded into the flat condition shown in FIG. 7, the result will be a folded and collapsed flat which can be set up into substantially tubular form. The group of parts shown in FIG. 7 will consist of flat members easy to ship and store. The flats for the base 21 and the cap 24 will be set up in exactly the same manner. For example, the tube 21 will be expanded into polygonal tubular form and the disc 22 will be inserted therein axially downwardly until it rests on the shoulder 29. The panels 27 preferably are in a large number so that they will be very narrow and when the flat is expanded, the resulting tube will be of polygonal cross-section since the panels 27 are still evident and fold about the score lines 26 even though the cross-section approaches a circular form. The panels will be substantially rigid in a transverse direction because they are so narrow. The peripheral edge of the disc 22 will preferably be circular and will engage the inner surfaces of the panels 26 and hold the member 21 expanded into polygonal tubular form. In fact, due to the diameter of the disc, which will substantially equal the diametrical dimension between opposed score lines 26, the edge of the disc will usually penetrate slightly into the inner faces of the panels 27 and the panels may be curved transversely slightly. The flat 23 will be expanded in a similar manner and held in expanded condition by the cooperating disc 25. The liner flat will be expanded into polygonal tubular form and when placed in the base 21 will stay expanded into that form. As indicated, the panels 35 will be of slightly less width, as compared to the panels 27, so that the expanded member 23 will be complementary to the expanded member 21 and will fit snugly therein, with the inner and outer panels being in flat contact (FIGS. 2a and 3). The cap 24 may then be slipped over the projecting part of the upstanding liner 23 to produce the container shown in FIG. 1. The cap will fit on the liner in the same manner that the liner fits into the base as described above. The upper edge of the base 21 will be adjacent the lower edge of the cap 24 and the resulting joint may be sealed by a tape 40, if desired. The discs 22 and 25 need not be glued in position since they tightly fit in position and, when the container is closed, are each gripped between the end of the liner and the associated end flange 28 or 32.

As previously indicated, the liner 23 could be dispensed with and the cap body 25 could be made to telescope over the upper end of the base 21, but the container described above is preferred for most uses.

It will be apparent that the drum-like structure produced, as described above, will have all the advantages of the usual telescoping type fiber drum. The container will be of drum-like form, approaching a circular cross-section, but will be set up from folded collapsed flats and cooperating discs which will occupy a minimum of space in shipping and storage. When once set-up, the drum will maintain its form and will have substantial axial and radial resistance to deformation. When in use, the drum can be readily handled or stacked without distortion.

The drum-like container will be provided by at least two telescoping bodies of polygonal form. The two bodies will

complementally slide together, since the outer peripheral surface of the inner body will be of substantially the same extent as the inner peripheral surface of the outer body. This will cause the inner body panels to be slightly narrower than the outer panel bodies and to lie in flat contact therewith. The preformed and expanding members, or discs, will be of substantially rigid nature and will be of a peripheral extent substantially equal to the peripheral extent of the inner surface of the outer body. Thus, the expanding member will effectively expand the body into a tubular cross-section approaching annular.

Having thus described this invention, what is claimed is:

1. A drum-like container of the telescoping type including an inner tubular body with the outer body slideably telescoping over the inner body, each of said tubular bodies being of polygonal transverse cross-section and consisting of a plurality of panels joined at vertical fold lines, each of said tubular bodies being axially inwardly turned at one end to provide an inner shoulder spaced axially inwardly from that end, and a substantially rigid expanding member inserted in that end of the body in engagement with said shoulder and having a peripheral edge in engagement with the inner surfaces of the body panels to expand the end of the tubular body and maintain it in expanded form.

2. A drum-like container according to claim 1 in which the peripheral edge of the expanding member is of an extent substantially equal to that of the inner surface of said body.

3. A drum-like container according to claim 1 in which the outer peripheral surface of the inner body is of substantially the same extent as that of the inner peripheral surface of the outer body so that the inner panels are of less width than the outer panels and are disposed in flat contact therewith.

4. A drum-like container according to claim 3 in which the expanding member is a disc with a circular edge and its circumference is equal to the peripheral extent of the inner surface of the tubular body.

5. A drum-like container according to claim 4 in which the outer body is a base and has its expanding disc resting on its shoulder, the inner body is a liner and has a lower end resting on the disc and an upper end projecting from the upper end of the base, and a cap body telescoping over the upwardly projecting end of the liner, said cap body comprising a polygonal tube of complementary cross-section to the liner and having its upper end turned inwardly to provide a shoulder spaced axially inwardly, and an expanding disc inserted in said end to expand it and engage said shoulder, said disc being of a circumference corresponding substantially to the peripheral extent of the inner surface of said cap body, the upper end of the liner contacting said disc.

6. A drum-like container according to claim 3 in which each of the tubular bodies is formed of a sheet of material scored at intervals to provide said panels, the shoulder at the one end of each tubular body being provided by a flange along one of its horizontal edges which is turned inwardly, the respective ends of the sheet being laterally overlapped and secured together to provide a vertical seam.

7. A group of knocked-down container parts to be set up into a container of the telescoping type comprising at least two flats, each of the flats comprising a blank of material having vertical fold lines at intervals therealong to provide a plurality of vertical panels, said blank having its ends secured together and being folded about two of the vertical fold lines to provide superimposed flat sections, each section consisting of a plurality of connected vertical panels, said blank having a horizontal edge turned inwardly to provide an inwardly extending flange with a shoulder at its inner extremity, each of the flats being adapted to be expanded into polygonal tubular form and to be telescopically engaged, the one flat having panels of less width than the other so that the peripheral extent of the one tube at its inner surface is of the same extent as the peripheral extent of the outer surface of the other tube inserted therein.

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8. The combination of claim 7 including a member for expanding at least one of said polygonal tubular members to receive the other, said expanding member having a peripheral edge for engaging the inner surfaces of the panels of said tubular member in which it is adapted to be inserted into axial engagement with said shoulder, said member being of a peripheral extent corresponding to that of the peripheral extent of the inner surface of the polygonal member in which it is inserted.

9. The combination of claim 8 in which said expanding

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member is in the form of a substantially rigid disc having a circular edge.

10. The combination of claim 9 in which three of said flats are provided including a base flat, a liner flat and a cap flat, the base flat and cap flat having panels of the same width and the liner flat having panels of less width, so that it will telescopically fit within and be complementary to the base and cap, one of said discs being provided for expanding each of the cap and base flats.

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