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(54) **BOTTLE OF PRISMATIC SHAPE WITH A BASE IN THE FORM OF A SECTOR OF A CIRCLE FOR PACKAGING FLUID FOODSTUFFS**

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(57) **ABSTRACT**

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For fluid foodstuffs which, for storage purposes, are to undergo a very-high-pressure treatment in a special apparatus comprising a cylindrical chamber, a prismatic bottle is provided, its cross section being a circular sector, its body having a volume of around e.g. 750 cm³ or 1000 cm³.

(21) Appl. No.: **10/302,307**

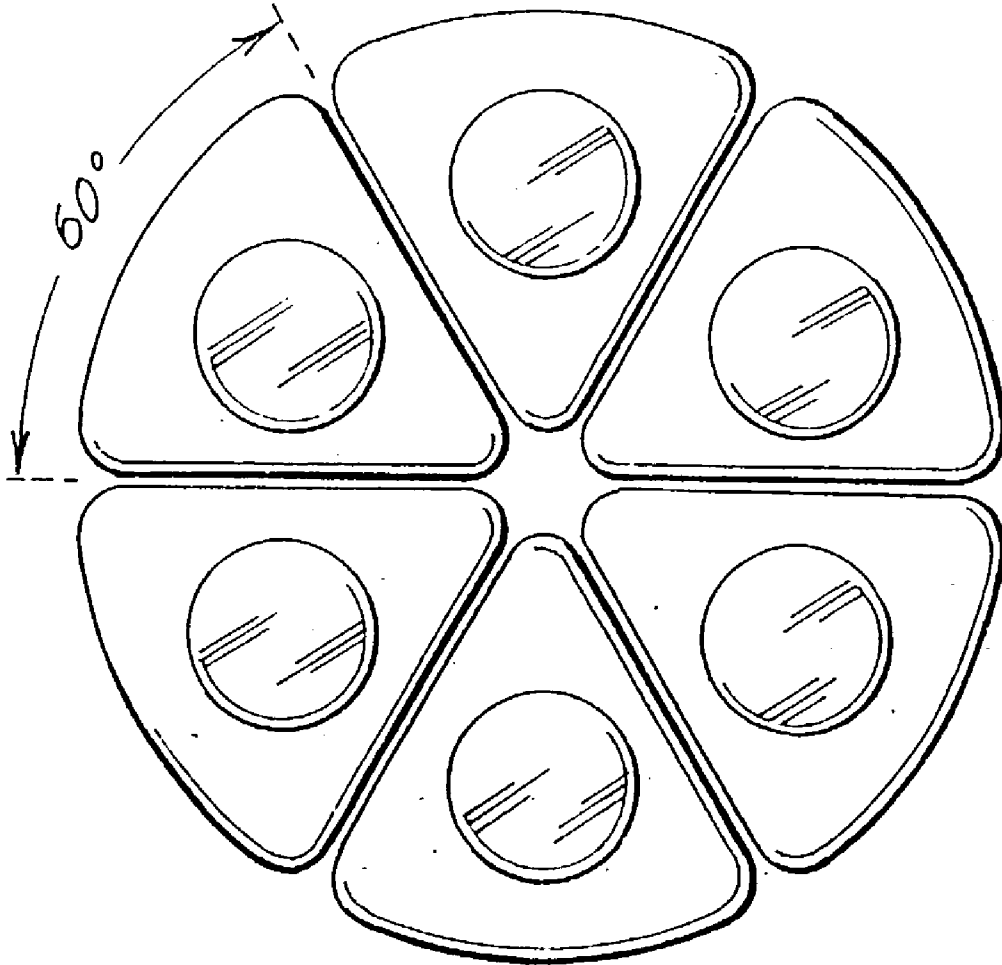


Fig. 1

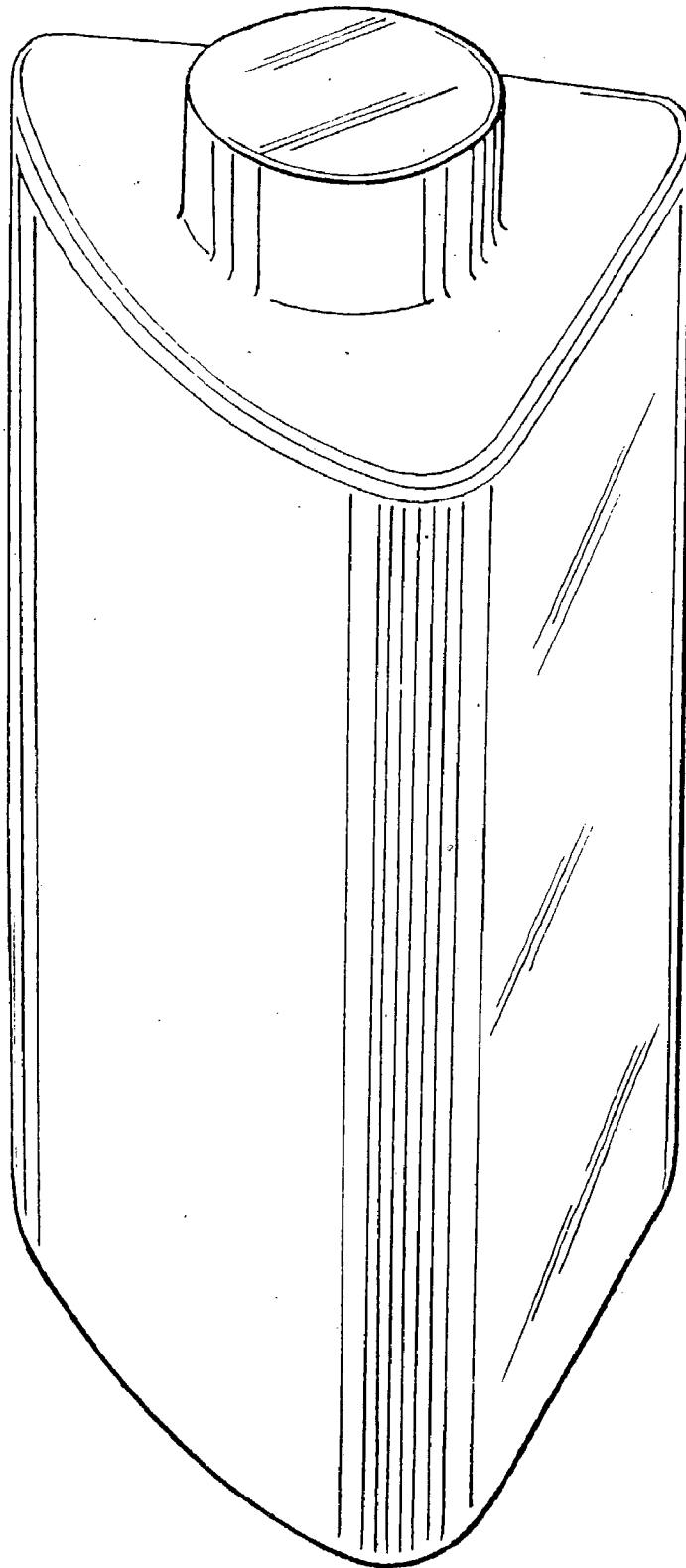


Fig. 2

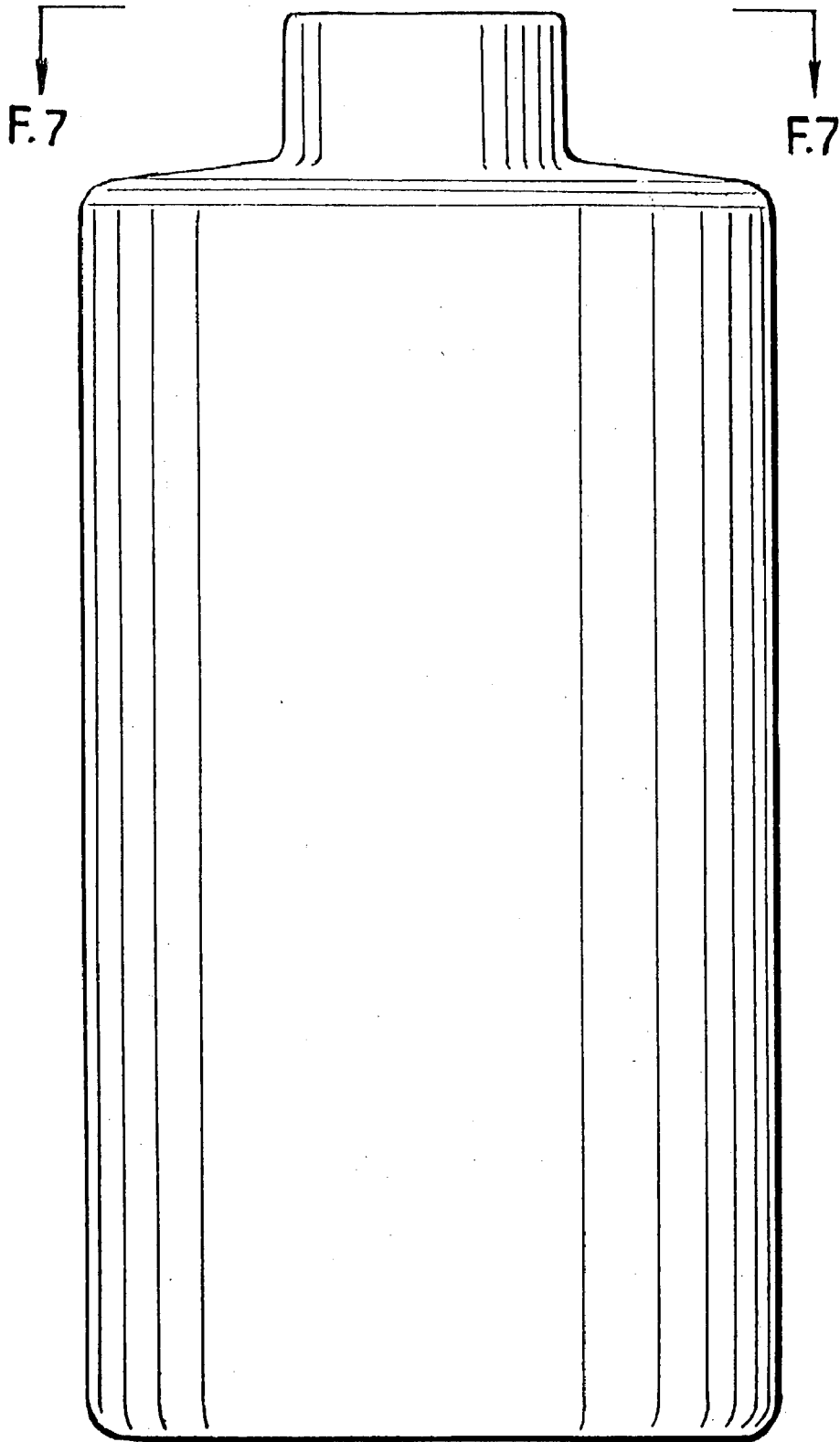


Fig. 3

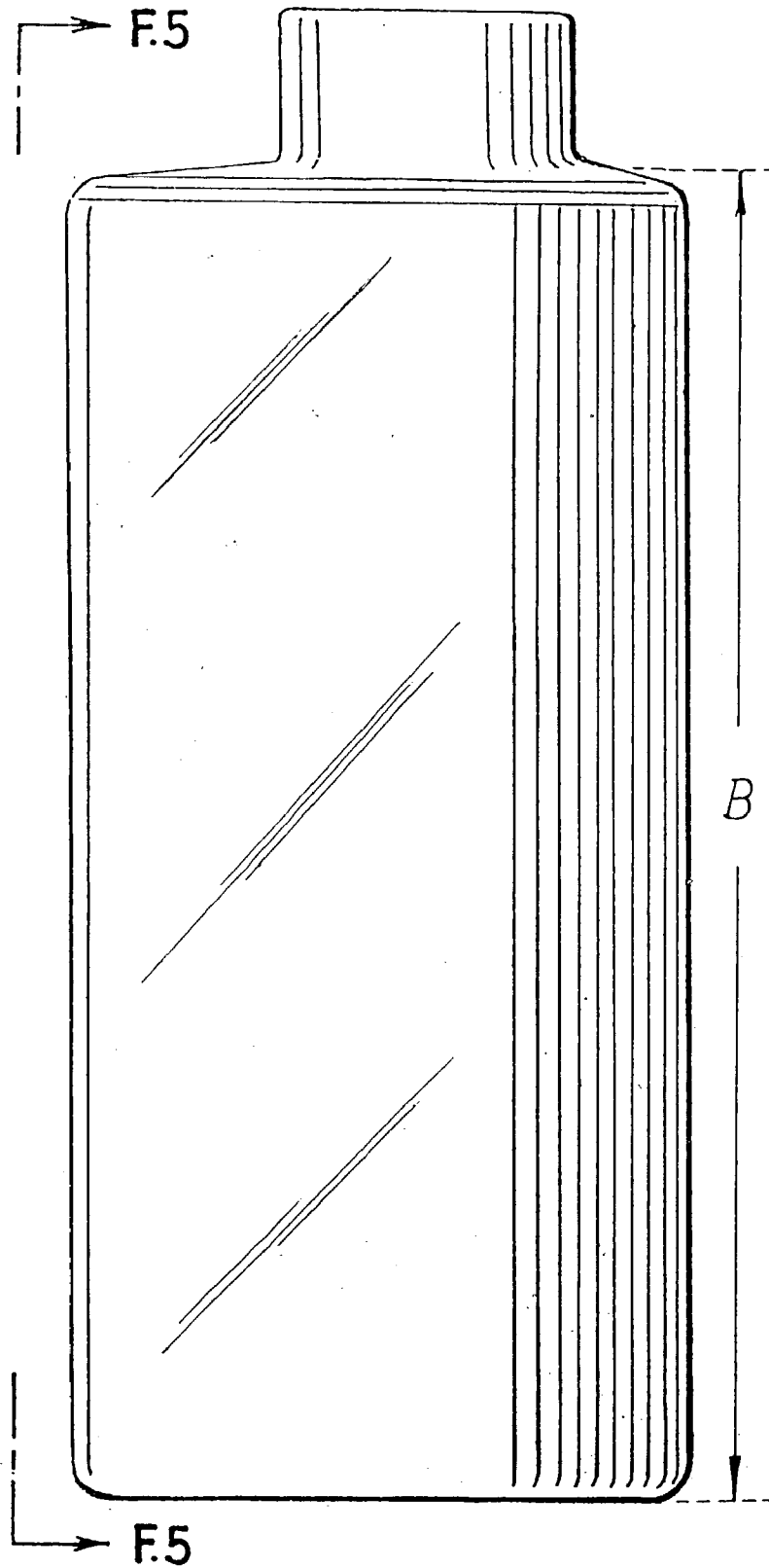


Fig. 4

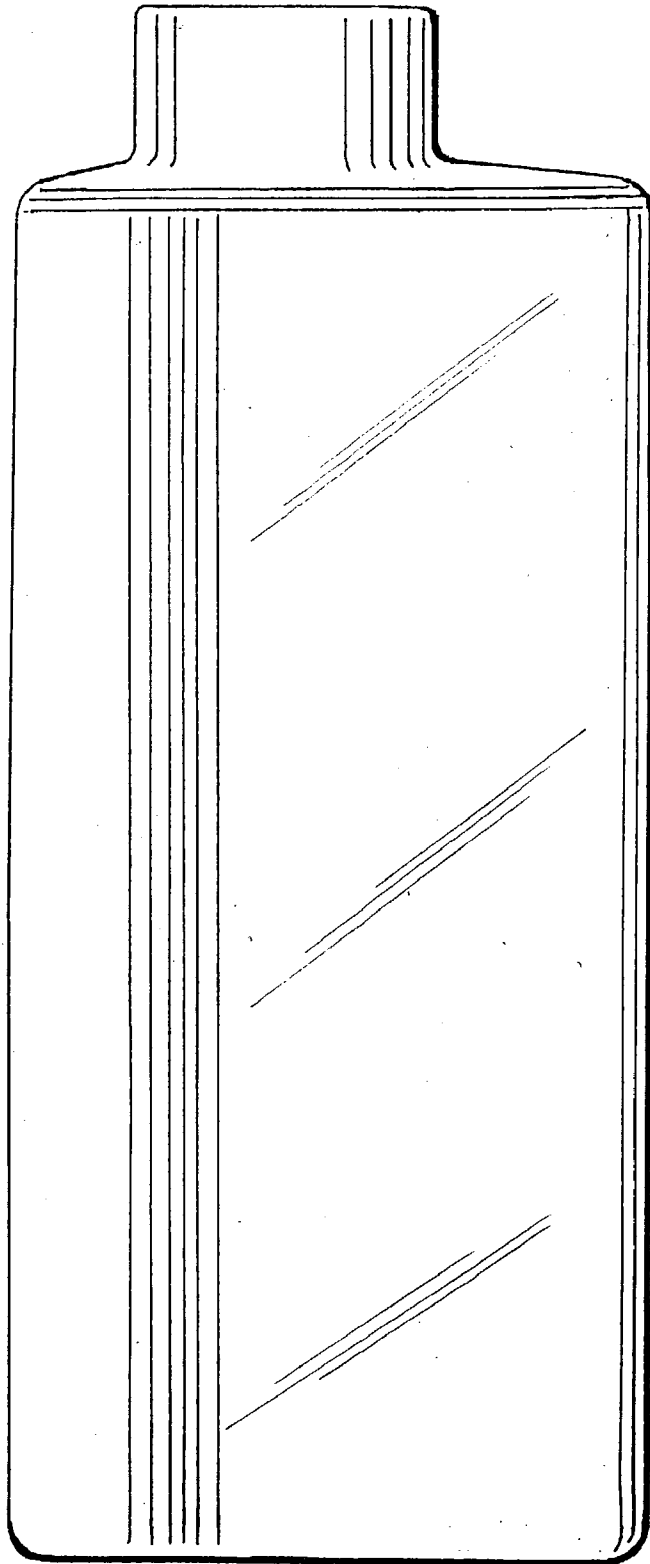
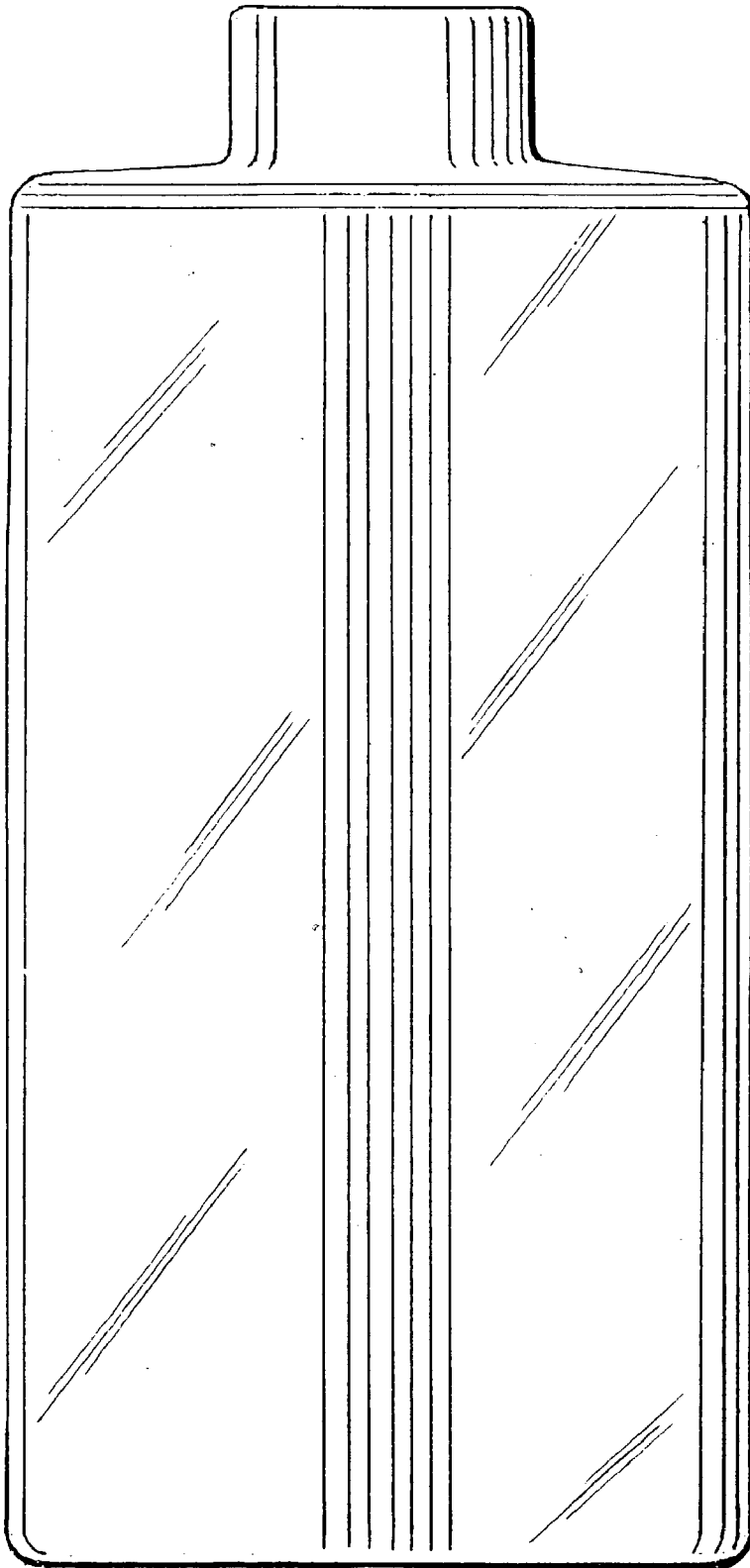


Fig. 5



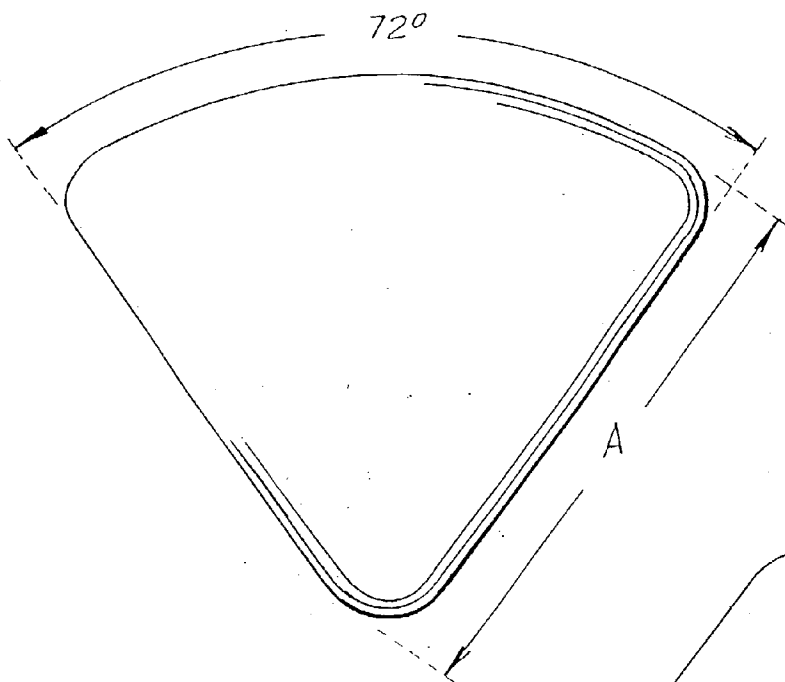


Fig. 6

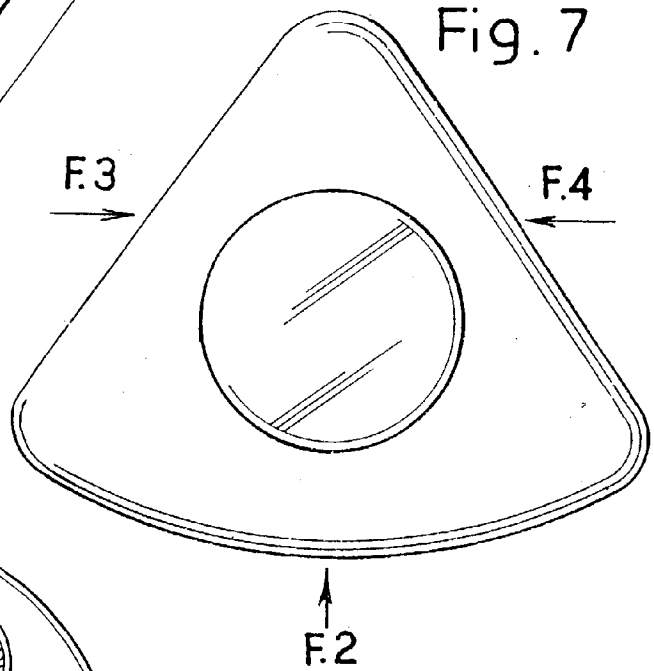


Fig. 7

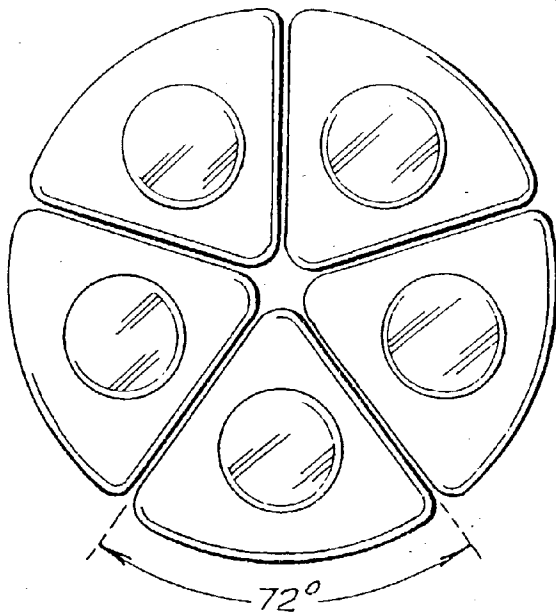


Fig. 8

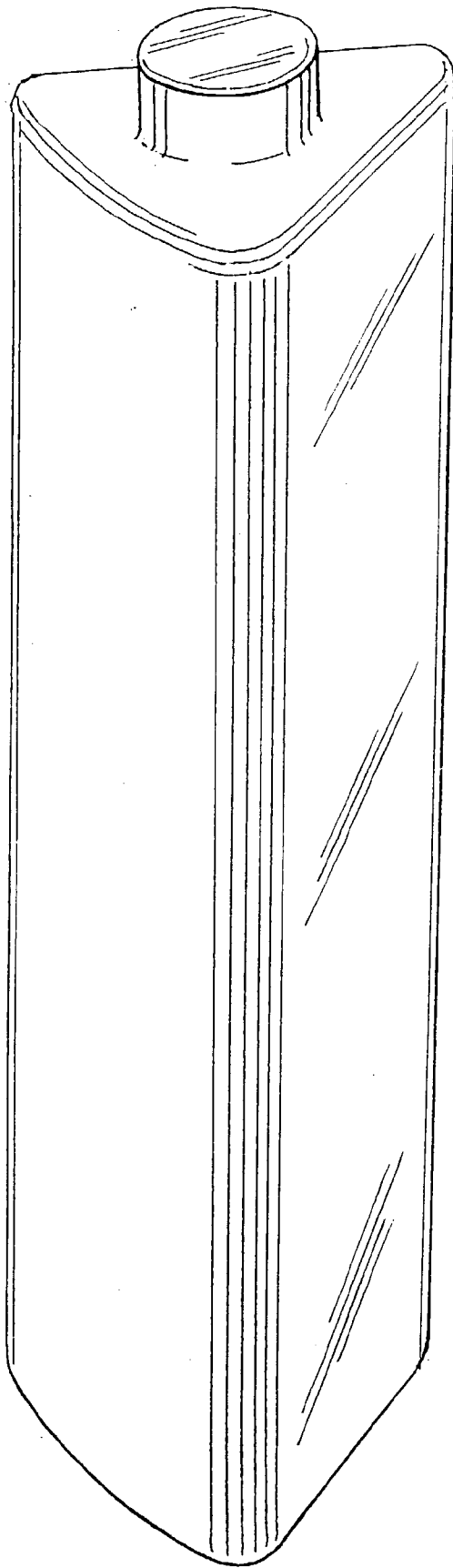


Fig. 9

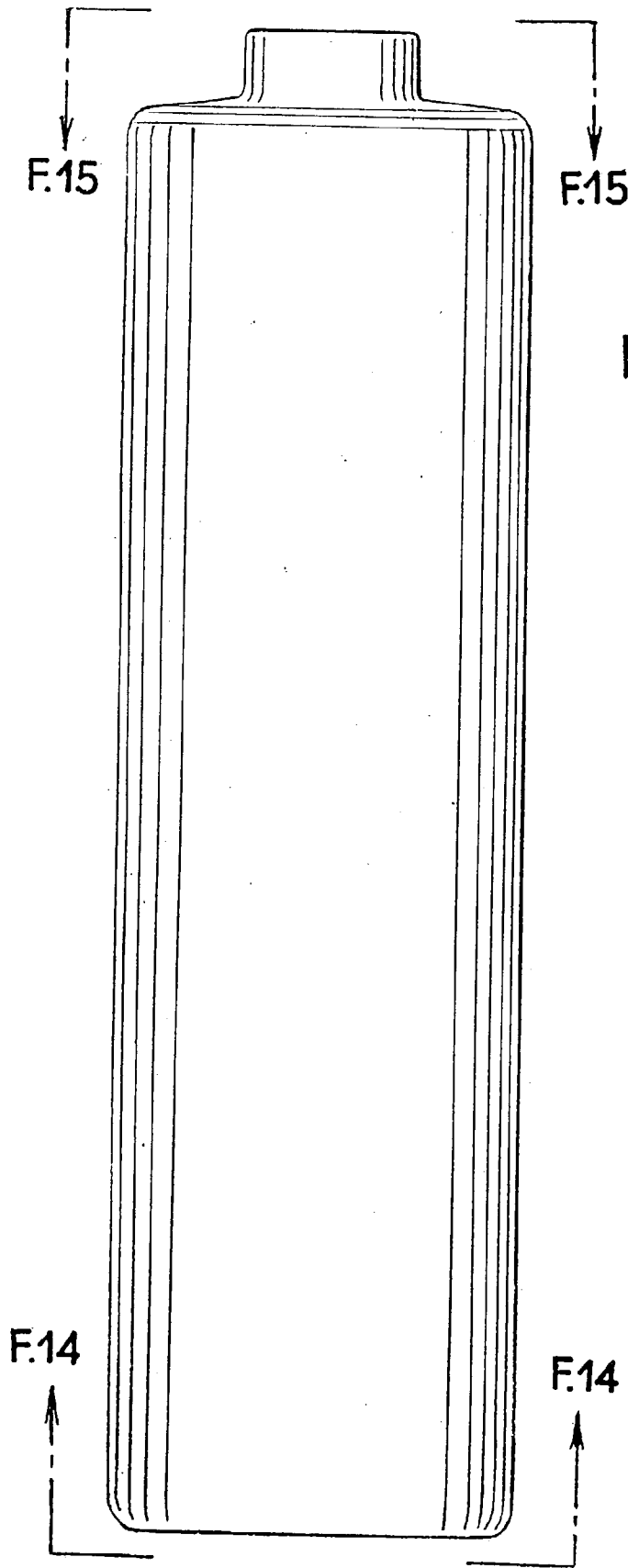


Fig. 10

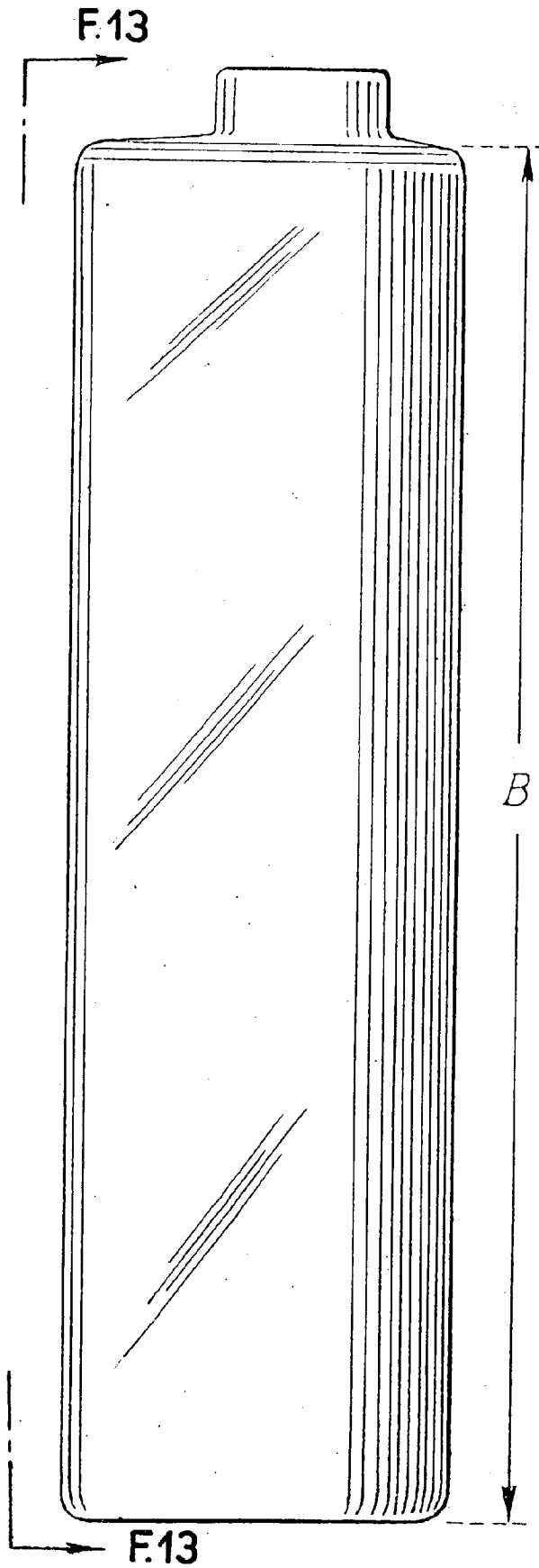


Fig. 11

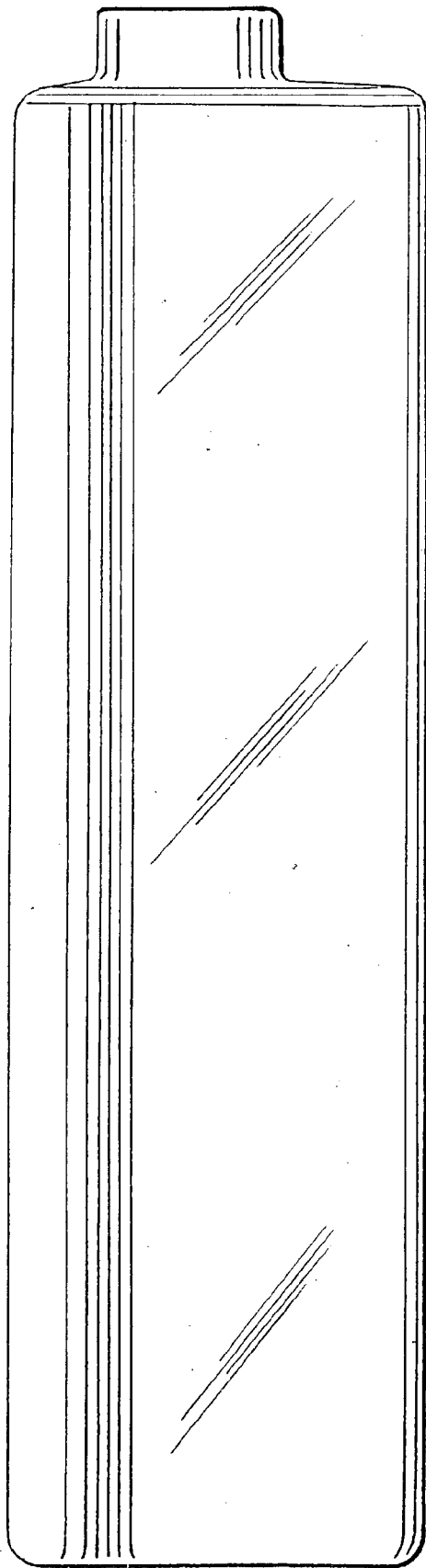


Fig. 12

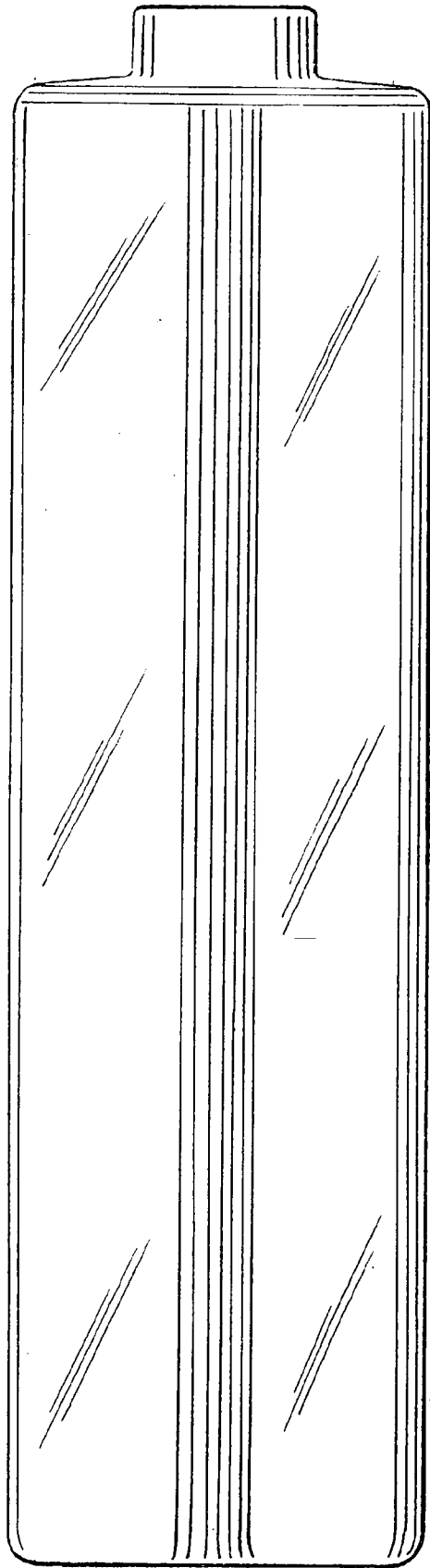


Fig. 13

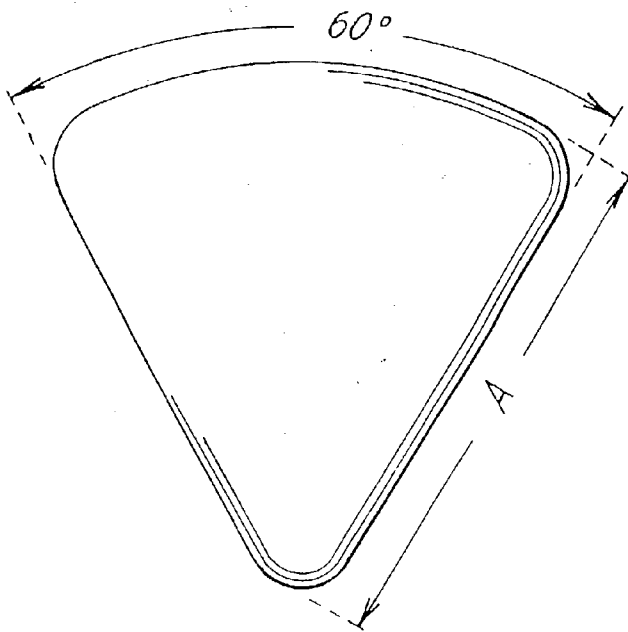


Fig. 14

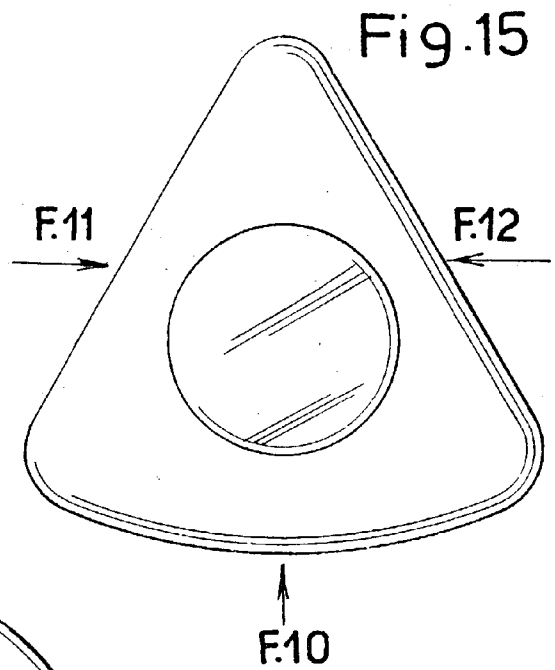


Fig. 15

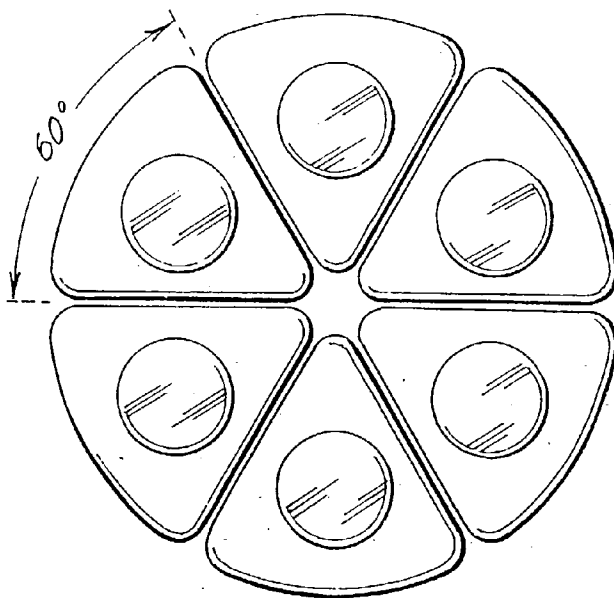


Fig. 16

BOTTLE OF PRISMATIC SHAPE WITH A BASE IN THE FORM OF A SECTOR OF A CIRCLE FOR PACKAGING FLUID FOODSTUFFS

[0001] The invention relates to a bottle whose special shape has been designed to maximize the use of an installation for the treatment of fluid foodstuffs intended for long-term storage, this treatment, which consists of pasteurization and/or sterilization, involving the use of very high pressures. This makes it necessary to use a hyperbaric chamber which, in order to withstand the very high pressures employed, which are of around 6000/8000 atmospheres, must be a solid of revolution, and in particular a cylinder of relatively limited diameter.

[0002] A plurality of sealed bottles must be accommodated in the cylindrical hyperbaric chamber, the residual spaces of which must be filled with water or other liquid to complete the filling of this chamber.

[0003] The bottle according to the present invention enables the maximum use of the volume of said chamber, this involving clear advantages in terms of costs and output.

[0004] The present bottle is useful for packaging fluid foodstuffs which are to undergo, for storage purposes, the treatment referred to above in the cylindrical chamber designed to accommodate the filled and sealed bottles together with water or other liquid to fill up the rest of the chamber. For the purposes indicated above, the present bottle is of prismatic shape with a cross section in the form of a circular sector.

[0005] In particular, according to a first embodiment of the invention, the cross section of the bottle is a circular sector with an angle of approximately 72° (one fifth of one complete revolution) and height of around 17.5 cm with slightly rounded edges due to manufacturing constraints, the whole being such as to give an internal volume of about 750 cm^3 .

[0006] This not only makes it possible to maximize the use of the volume of the abovementioned cylindrical chamber, the shape and volume of which are imposed by construction, but also to package bottles whose volume is standardized to meet the applicable legislation and the most typical requirements of consumers.

[0007] According to a second embodiment of the invention, the bottle is of prismatic shape, its cross section being a circular sector with an angle of 60° (one sixth of one complete revolution), the edges being slightly rounded, due to manufacturing constraints, and its internal volume being approximately 1000 cm^3 . The radius of curvature of the curved wall can be approximately 8.4 cm and the height around 28.5 cm plus the short joining surface and the neck representing approximately 1.5 cm.

[0008] According to this embodiment, six bottles are put together to create an approximately cylindrical shape, thus maximizing the use of the volume of the cylindrical hyperbaric chamber, the shape and volume of which are imposed by construction. Each packaged bottle has a standardized volume of approximately 1000 cm^3 , which satisfies consumer requirements.

[0009] The drawing shows in exhaustive detail, embodiments of the bottle according to the invention. In the drawing:

[0010] FIG. 1 shows the bottle according to a first embodiment of the invention, in a perspective view;

[0011] FIGS. 2-7 show the geometrical views on II-II, III-III and IV-IV as marked in FIG. 7, V-V as marked in FIGS. 3 and 7, a bottom view and a top view on VII-VII as marked in FIG. 2 of the bottle of FIG. 1;

[0012] FIG. 8 is a plan view of five bottles placed together to give a cylindrical shape;

[0013] FIG. 9 shows a perspective view of a bottle according to the invention in a different embodiment;

[0014] FIGS. 10-15 are geometrical views on X-X, XI-XI and XII-XII as marked in FIG. 15 and on XII-XII as marked in FIG. 11, and also a bottom view on XIV-XIV and a top view on XV-XV as marked in FIG. 10 of a bottle according to FIG. 9; and

[0015] FIG. 16 is a plan view showing an assembly of six bottles placed together to give a cylindrical shape.

[0016] With reference to FIGS. 1 to 8, as is clear from the drawing, the shape of the bottles is such that a number of bottles placed together with their dihedral angles converging, together occupy a circular cylindrical volume.

[0017] If the bottles are to be made with a capacity of 750 cm^3 , dimensions A and B are about 8.4 cm and 17.5 cm, which enables the maximum use of the usable volume of an apparatus of the abovementioned type available for treating the bottles. The above details can be varied to a limited degree depending on what slope is necessary between the body and the neck to enable the bottle to withstand vertical stacking.

[0018] FIGS. 9 to 16 show a different embodiment of the bottles according to the invention. As is clear from the drawing, in this case the bottles are so shaped that six bottles, placed together with the dihedral angles converging, create, when viewed as a whole, a circular cylindrical shape.

[0019] Due to dimensional considerations imposed by the morphology of the hyperbaric chamber, dimension A must be approximately 8.4 cm; if the bottles are to have a capacity of approximately 1000 cm^3 , dimension B is approximately 28.5 cm. This allows the maximum use of the usable volume of an apparatus of the abovementioned type available for treating the bottles, bearing in mind the limited extra volume required for the necessary slope between body and neck to withstand vertical stacking, and for the presence of the neck.

1. A bottle for packaging fluid foodstuffs that are to undergo a very-high-pressure treatment in a special apparatus comprising a cylindrical chamber designed to accommodate the filled and sealed bottles together with water or other liquid to fill up the rest of said chamber, which bottle is of prismatic shape, its cross section being in the form of a circular sector.

2. A bottle according to claim 1, having a cross section in the form of a circular sector with an angle of approximately 72° (one fifth of one complete revolution), height of around 17.5 cm and volume of around 750 cm^3 , with slightly rounded edges due to manufacturing constraints, the whole

being such as to maximize the use of the volume of the abovementioned cylindrical chamber.

3. A bottle according to claim 1, having a cross section in the form of a circular sector with an angle of 60° (one sixth of one complete revolution), height around 28.5 cm and volume around 1000 cm^3 , with slightly rounded edges due to manufacturing constraints.

4. A bottle according to claim 3, comprising an extra volume for the slope of the joining shoulder between the

wall of the body of the bottle and the neck and for the neck, of around 1.5 cm, thereby maximizing the use of the volume of the abovementioned cylindrical chamber.

5. A bottle for packaging fluid foodstuffs of prismatic shape with a base in the form of a sector of a circle, the whole as described and illustrated and for the objects indicated.

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