

ALIEN PROPERTY CUSTODIAN

CLOSED CAPACITIES

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Up to the present time, practically all objects constituting closed chambers in which a vacuum is to be maintained, have been made of glass, because this substance has the property of keeping a practically perfect vacuum. However, glass has the very serious drawback of being brittle.

On the other hand, difficulties have been experienced when it has been endeavoured to make such objects of metals, because if metals are much more resistant than glass, they maintain vacuum in an imperfect manner.

The object of the present invention is to provide articles containing vacuum chambers which are made of a substance capable of preserving vacuum while having a good mechanical resistance.

Now, I have found that, contrary to what might have been expected, some organic materials are capable of preserving vacuum substantially to the same degree as glass. These organic materials belong to the group of synthetic resins, and the best results have been obtained with the polystyrols which have very special advantages from this point of view.

On the other hand, these materials have mechanical properties which are much better than those of glass.

An essential feature of the present invention therefore consists in making objects forming chambers in which a vacuum is to be established and maintained, of synthetic resins and in particular polystyrols, these substances being used either in the pure state or mixed with other substances.

In particular, the synthetic resins in question are advantageously mixed with silica, so as to

obtain a mixture which is better adapted to resist heat and shocks. Objects of the kind above referred to, made of the substances or mixture of substances in question, will have many advantages. The chief of these advantages are the possibility of obtaining both a high resistance to shocks (which can never be obtained with glass), an easy moulding, welding, coloring, transparency, while the possibility of maintaining a high vacuum is substantially the same as in the case of glass.

Among the possible applications of synthetic resins and in particular polystyrols to objects according to the present invention, I will indicate the following:

The manufacture of bottles and containers of the so-called Isotherm type, which can be made either transparent or opaque, the manufacture of electric bulbs for lighting or radio, the construction of manometric boxes with parallel corrugation; and in a general manner the fabrication of all objects forming closed chambers in which a more or less considerable vacuum is to be maintained for a long time.

It is also possible, according to the invention, to produce structures constituted by the assembly of plates or other elements made of these organic materials and forming closed chambers, or to make use of elements of these materials made of a single piece and provided with such recesses.

Such constructions will permit of protecting airplane cabins, the inside of automobile vehicles, walls, floors, ceilings of rooms against the action of cold or heat of the surrounding medium.

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