

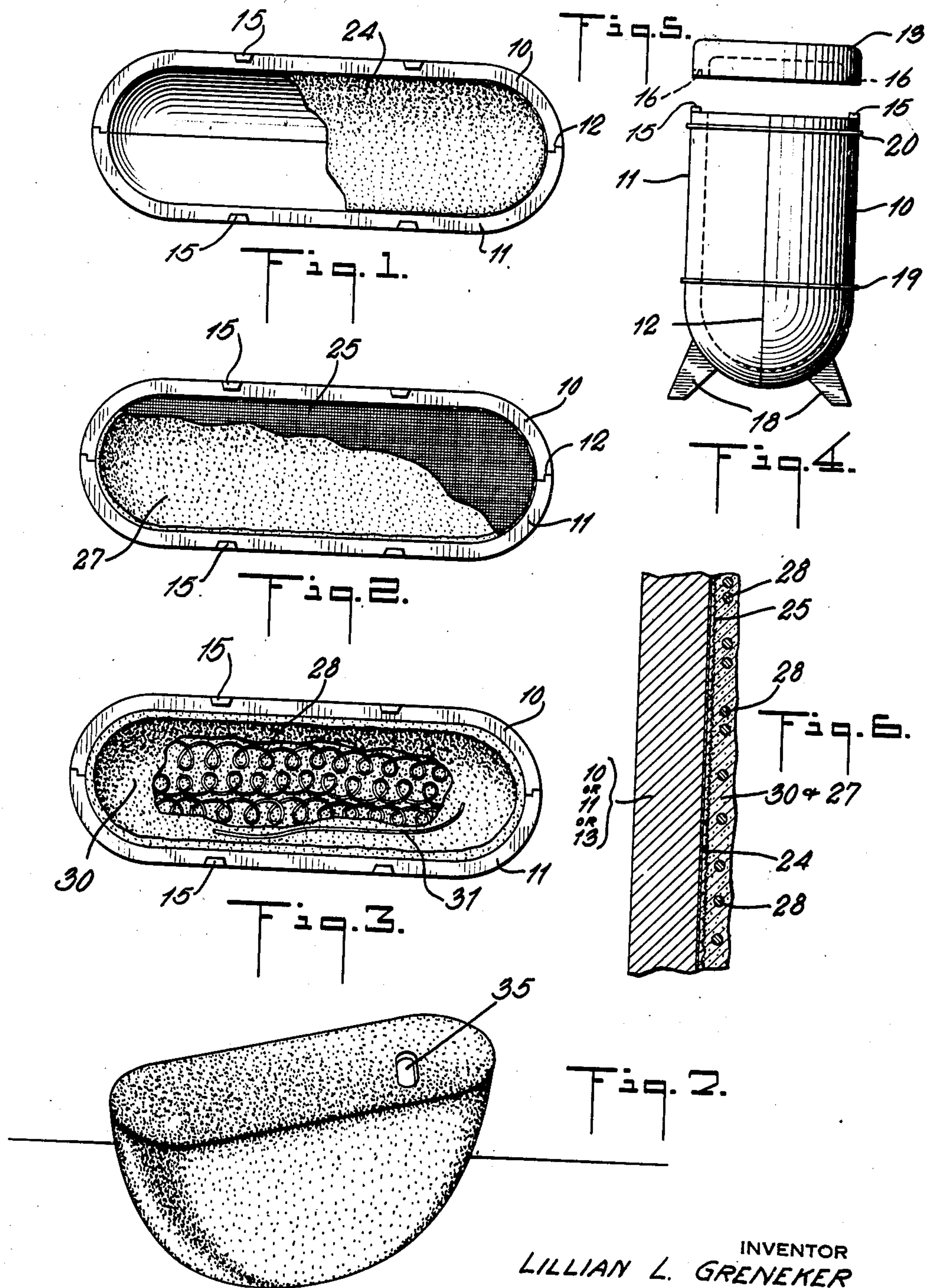
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DESTRUCTIBLE FORM

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DESTRUCTIBLE FORM

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This invention relates to a destructible form which is particularly useful in the manufacture of fuel tanks and cells or other articles made of rubber or other material. This invention is not concerned with the particular shape of the form, but merely with its construction, since of course the construction may be used in forms having an infinite variety of shapes and sizes.

The general object of the invention is to provide a form which will be cheap, light, strong and rigid, and not subject to change of shape under conditions to which it may be subjected in use; and a form that can be easily destroyed and completely removed from the fuel tank or cell or article which may be made on it, even though the opening through which the form must be removed is comparatively small. Not only are all of these objects attained by the present invention, but the form also offers advantages from the standpoint of economy in the manufacture of fuel tanks and cells and other articles, due to labor saving and accurate control of the size and shape of such tanks, cells and articles.

The invention will be understood from the following description, taken in connection with the accompanying drawing, in which are described and shown a fuel cell form embodying the invention and method of making it. As hereinbefore stated, it will be understood that the particular fuel cell form shown in the drawing is merely illustrative of the invention, although many of these forms have been made and successfully used in the making of fuel cells. In the drawing, Figs. 1, 2 and 3 are plan views looking down into the body portion of an open mold and showing a form therein undergoing the various steps of its manufacture; Fig. 4 is an end elevation of said body portion of the mold; Fig. 5 is an end elevation of the cover portion of said mold; Fig. 6 is a fragmentary sectional elevation of a wall of the mold and of the article formed thereon; and Fig. 7 is a perspective view of the form after it has been removed from the mold. The same reference characters refer to the same parts throughout the drawing.

As will be apparent from Figs. 1 to 5, the body portion of the mold shown therein comprises sections 10 and 11 adapted to engage one another as shown at 12; and a cover section 13 adapted to cooperate with the sections 10 and 11. To facilitate proper engagement of the cover section 13 with the sections 10 and 11, lugs 15 are provided on the edge surfaces of the sections 10 and 11; and the cover section 13 is provided with notches

16 which will engage the lugs 15. The mold sections 10 and 11 may be provided with supporting legs 18 or may be otherwise constructed so as to facilitate the standing upright of the mold sections in the position shown in Fig. 4. Clamping means of any suitable kind, for example, ropes or wires 19 and 20 may be used to hold the mold sections 10 and 11 together during the making of the form; and when these clamping means are removed the mold sections 10 and 11 can be separated and the form can be separated from the mold. The mold may be constructed of any suitable material such as plaster, cement, metal, etc.; and can be constructed either according to furnished dimensions of the form or from a model of the form.

The structure of the form and the methods by which it is made in the mold will now be described. The major material of which the form is constructed may be plaster of Paris or any other suitable moldable material, and in the description which follows the term "plaster" is intended to cover all suitable moldable materials. In the fabrication of the form, the inside surfaces of the mold sections 10 and 11 and of the cover 13 are first greased in order to prevent sticking of the plaster, as is customary in the molding of plaster articles. These greased surfaces are then covered with a layer of wet plaster as indicated at 24 in Fig. 1. Pieces of a loosely woven fabric such as cheese cloth are then applied to the wet plaster and more or less buried in it, as is represented at 25 in Fig. 2. However, this fabric is not an essential feature of my invention and may be omitted if desired, although in the making of some forms it seems to be useful. In those cases in which the fabric 25 is used, a layer of wet plaster is applied to the fabric, as represented at 27 in Fig. 2. Heavy twine, small rope or an equivalent material is then laid in the wet plaster 27, preferably in the looped manner shown at 28 in Fig. 3, although of course the rope may be arranged in other ways without departing from the spirit of the invention. In practice, it has been found that the rope 28 can easily and quickly be arranged in the looped form shown in Fig. 3, and that a slight pressing of the rope into the wet plaster will cause sticking and will result in retaining the rope even on the vertical surfaces of the mold. The rope is then covered with more wet plaster, as indicated at 30 in Fig. 3, to a depth sufficient to bury and hide the rope which serves as a gauge of the thickness of this plaster layer. One end or both ends of the rope are preferably

left free and projecting from the plaster, as shown at 31, for a purpose hereinafter described. The greased cavity in the cover 13 is also covered with wet plaster, cheese cloth, more wet plaster, rope and still more wet plaster in the same manner as has been described above in connection with Figs. 1 and 3. While the plaster in the mold sections 10 and 11 and the cover 13 is still wet, the cover 13 is applied to the top of the mold sections 10 and 11; and in a short time the plaster in the cover section 13 unites with the plaster in the mold sections 10 and 11. Thus, within the mold there is formed a hollow plaster form the walls of which although thin have very considerable strength owing to the reinforcing action of the twine or rope which is buried in the walls of the form. Fig. 6 helps make clear how the comparatively thin wall of plaster is reinforced by the twine or rope and to some extent also by the fabric 25 when that is used.

After the plaster has set within the mold for a short time, the cover section 13 is removed; and, after removing the fastenings 19 and 20, the sections 10 and 11 are separated; thereby facilitating the removal from the mold of the form shown in Fig. 7. After drying, preferably in a drying room or oven, the form is complete and ready for use in the manufacture of seamless fuel tanks or cells or other articles.

It will be noted that the particular form shown in Fig. 7 is provided with an opening 35 in its flat surface. That opening corresponds to an opening which is required in the fuel cell which is to be made on this form. After fabrication of the fuel tank or cell on the form has been completed, it is possible through that opening to seize the loose end or ends of the ropes which are buried in the plaster walls of the form, and by pulling the rope or ropes the whole plaster structure may be broken up and removed, along with the rope and the fabric 25 (if that is used), through the opening in the fuel tank or cell corresponding to the opening 35. Thus, after it has served its purpose, the entire form is readily broken up and removed from the fuel tank or cell, with some of the plaster in loose pieces and some of the plaster attached to the rope 28 and to the fabric 25 when that is used. Any small amount of loose plaster or dust left within the fuel cell can easily be removed by washing or an air blast.

However, it is not necessary to provide any opening, such as 35, in a form made in the manner herein described. That is, the form may

be made with no opening at all. In all cases the fuel tank or cell or other article made on the form will have an opening; and in removing the form it is merely necessary to break through the wall of the form at said opening, thereby revealing some part of the rope buried in the plaster wall of the form; whereupon this part of the rope may be grasped and pulled out of the opening, thereby demolishing the form and permitting its removal from the finished article which has been fabricated upon the form.

What is claimed is:

1. A hollow form which in outside shape and size conforms to the space within a hollow article having an opening therein which is to be made on said form, the wall of said form being made of frangible molded material reinforced by a rope buried therein, and the wall of said form being so thin that pulling out of said rope will reduce the form to pieces which may be withdrawn from the hollow article through said opening.
2. A hollow form according to claim 1, having the rope arranged in loops within the wall of the form.
3. A hollow form according to claim 1, having an end of the rope projecting from the wall of the form.
4. A hollow form according to claim 1, having the rope arranged in loops within the wall of the form and having an end of the rope projecting from the wall of the form.
5. A hollow form which in outside shape and size conforms to the space within a hollow article having an opening therein which is to be made on said form, the wall of said form being made of frangible molded material having a fabric buried therein near its outer surface and also having a rope buried in the wall of said form interiorly of said fabric, and the wall of said form being so thin that pulling out of said rope will reduce the form to pieces which may be withdrawn from the hollow article with the rope and the fabric through said opening.
6. A hollow form according to claim 5, having the rope arranged in loops within the wall of the form.
7. A hollow form according to claim 5, having an end of the rope projecting from the wall of the form.
8. A hollow form according to claim 5, having the rope arranged in loops within the wall of the form and having an end of the rope projecting from the wall of the form.

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