April 26, 1966 G. E. McGINNIS 3,248,001

ELASTIC MEANS FOR COMPACTING COMPRESSIBLE MATERIAL

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Fig. 1A.

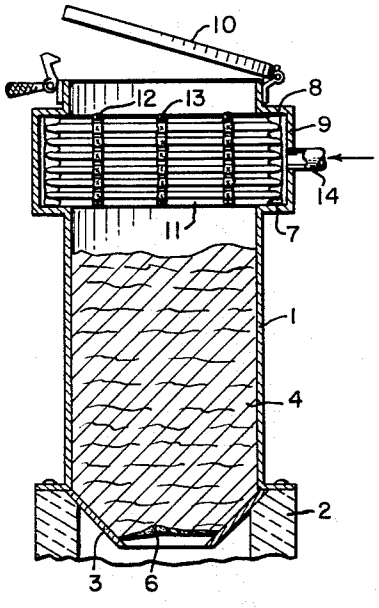


Fig. 1B.

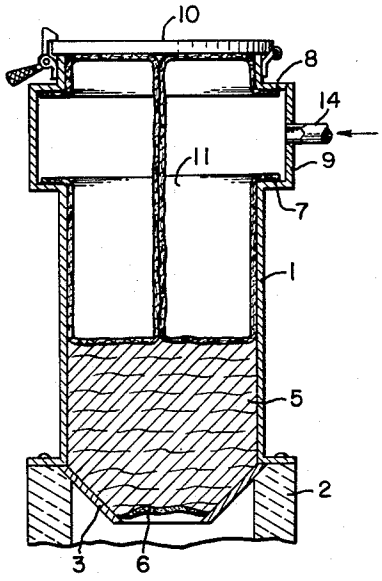


Fig. 2.

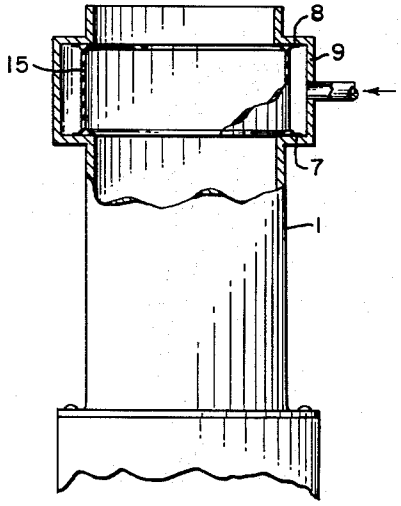


Fig. 3A.

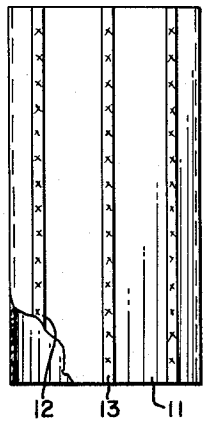
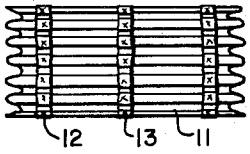


Fig. 3B.



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ELASTIC MEANS FOR COMPACTING COMPRESSIBLE MATERIAL

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This invention relates to means for compacting compressible material stored in a rigid container and particularly relates to means for compacting material stuffed into the trash bin of a household appliance, such as an incinerator, into an imporous mass.

An object of the invention is to provide a means which by inflation will, in its expansion, push the compressible trash stuffed into the trash bin toward the combustion chamber of the device and firmly compact it into an imporous plug which will maintain its opposite face under combustion at a given location, but which means is readily retractible to allow additional trash to be stuffed thereinto. In general this object is to provide means in a trash bin to compact the material therein, but which will offer no hindrance to charging the bin with additional material. Again, in general, this object is to provide a means presenting no obstacle in its operation to a housewife.

Another object of the invention is to provide a trash bin easily charged by the housewife operator, having therein a means automatically operable when the lid of the bin is secured thereto for compacting the trash stuffed therein and which is likewise automatically retractible when the said lid is unlatched.

In accordance with this object the upper part of the trash bin is provided with an elastic bag normally in the shape of an open ring inner tube, through the middle of which trash may be stuffed into the bin, but which is sufficiently elastic when the lid is secured and this ring is inflated to move into and occupy all empty space in the bin and to apply considerable pressure to the trash therein. Further, in accordance with this object this inflatable bag is constructed and arranged to retract completely when deflated so as to allow free access to the space in the bin below the bag.

A feature of the invention is an annular formation in the wall of the trash bin having an elastic face which normally acts as a wall of the bin so that trash may be freely stuffed into the said bin without encountering any hindrance. In one form of the invention, the elastic material is fixed to the sides of the bin so that the inflatable ring is partly metal (the annular formation) and partly imporous elastic material which, as above pointed out, is sufficiently elastic to move into and occupy all empty space in the said bin.

The elastic web secured to the corners of the annular formation and thus forming a wall of an inflatable ring may be formed of imporous fabric lined with strips of elastic so that when this ring is deflated the fabric will be gathered accordion fashion and disposed generally in line with the side wall of the trash bin. When the lid of the bin is secured and this ring is inflated, the fabric bag will expand into the bin and apply sufficient pressure to the trash stuffed thereinto to compact it into an imporous mass and to move it into contact with a so-called restriction ring where it will be continuously held as its bottom face is eroded and shrunken by combustion. These strips of elastic are affixed to the fabric of the bag at a plurality of points along their length so that as inflation pressure is removed, the fabric will be gathered accordion fashion into its smallest compass.

In accordance with an alternative form of the invention, the webbing affixed to the corners of the ring-like

formation in the walls of the trash bin may be of elastic material, such as plastic or sheet rubber, having sufficient strength and elasticity to expand under inflation and to fill all unoccupied space in the trash bin in the manner of an inner tube in a tire casing.

Another feature of the invention is a means for compacting a mass of compressible material which may have a rough and uneven surface. In consequence, the compacting bag cannot become cocked in the cylindrical trash bin, but will function even when the trash is emptied thereinto carelessly, perhaps forming a mound at one side or providing a soft spot that cannot be otherwise compacted to an imporous state. Moreover this bag will have a pressure exerting face which constantly urges the compressible material forwardly and in operation will take up uneven contours thereof so that the bottom face of the so-called plug of oxidizable material will maintain its position where it constitutes one wall of the combustion chamber.

Other features will appear hereinafter.

The drawings consist of a single sheet having five figures, as follows:

FIG. 1A is a schematic diagram showing substantially in vertical section the open bottom trash bin surmounting the ceramic body of the combustion chamber with a ring-like formation in the top portion of the trash bin with the elastic bag cemented or otherwise attached to the corners of the ring-like formation and collapsed to give free access from the lifted lid to the trash bin.

FIG. 1B is a like view showing the lid secured to the top of the trash bin and the bag inflated so as to occupy all free space in the bin and to compact the trash which has been stuffed therein;

FIG. 2 is a view similar to FIG. 1A, but in which the elastic bag consists of material which in itself is elastic rather than the inelastic fabric of FIG. 1A;

FIG. 3A is a schematic of the elastic bag used in FIGS. 1A and 1B indicating that it is constructed of a substantially cylindrical piece of inelastic fabric having strips of elastic material affixed thereto at regular intervals, and

FIG. 3B shows the cylindrical fabric of FIG. 3A collapsed under the elastic force of the strips of elastic so that it is folded accordion fashion as its upper and lower circular edges are affixed to the corners of the ring-like formation of the trash bin, as shown in FIG. 1A.

A trash bin surmounting a combustion chamber and having an inflatable bag to compact the trash stuffed therein comprises a part of a household appliance in the form of an incinerator. The compacting bag is a device which, when inflated, will occupy all free space in the trash bin from the clamped lid to the top of the compacted mass of trash forming the plug whose bottom face is under combustion. Various forms of this compacting bag have been provided, but all pose the problem of charging the trash bin below the compacting bag and none, so far, has proved to be ideal when the weight of the bag and the speed with which it may be moved out of the way have been considered.

As shown in the drawings, applicant provides a ring-like formation near the top of the trash bin which is essentially a recess into which an inflatable ring, such as an inner tube, may retreat so that the bin may be charged from above. Applicant provides an elastic facing secured to the corners of this ring-like formation so that the said formation and its elastic facing provide an inflatable bag.

In FIGS. 1A, 1B and 2, the open bottom trash bin **1**, surmounts the ceramic body **2** of the combustion chamber. A funnel-shaped restriction ring **3** prevents the trash **4**, loosely stuffed in the bin as shown in FIG. 1A, and the compacted trash **5**, shown in FIG. 1B, from dropping down into the combustion chamber. Its bottom face **6**

substantially constitutes one wall of the combustion chamber.

In the upper part of the trash bin a ring-like formation of the wall surfaces **7**, **8** and **9** is provided to constitute a recess into which the elastic facing may retreat so that there will be clear access to the lower part of the trash bin when the lid **10** is unlatched and lifted.

This elastic facing may be of a virtual cylindrical piece of inelastic air-proof fabric **11** having a number of strips **12**, **13**, etc., affixed thereto at regular intervals so that normally the fabric **11** will be gathered accordion-like into short compass. The lower edge of this cylindrical piece of fabric is attached by cement or other convenient means to the lower piece **7** of the walls of the trash bin and the upper edge is affixed in like manner to the piece **8** so that the space between the fabric **11** and the walls **7**, **8** and **9** of the ring-like formation constitute an inflatable bag. This may be inflated by the admission of compressed air through the tube and deflated by the connection of the tube **14** to a reservoir of evacuated air.

When the bag is inflated, it will expand and occupy all free space above the trash and will compact it as indicated in FIG. 1B.

Instead of an inelastic fabric shown in FIGS. 1A, 1B, 3A and 3B, the elastic portion of the bag may be formed of elastic material **15**, as indicated in FIG. 2, with its two circular ends cemented or otherwise affixed to the pieces **7** and **8**. This construction affords a smooth inner surface substantially one with the inner surface of the trash bin **1**.

The materials chosen and the dimensions thereof are such that the elastic limit of the bag will not be exceeded.

What is claimed is:

1. A storage bin of a generally cylindrical shape having a ring-like formation located in the upper part thereof, a lid for said storage bin to close the top of said bin, the bottom of said bin being closed by compressible material stuffed thereinto, an elastic imporous webbing affixed to the edges of said ring-link formation at the intersection thereof with the said cylindrical wall of said bin, said affixation being air-tight, whereby said ring-like formation having its open face covered by said elastic webbing constitutes an inflatable bag at the top of said bin, and means to enter compressed air into said bag to expand said elastic webbing into said storage bin to occupy all free space therein and to compact said compressible material.

2. A storage bin of a generally cylindrical shape having a ring-like formation located in the upper part thereof, a lid for said storage bin to close the top of said bin, the bottom of said bin being closed by compressible material stuffed thereinto, an elastic imporous webbing cylindrical in shape and having its upper and lower circular edges affixed to the edges of said ring-like formation at the intersection thereof with the said cylindrical bin, said affixation being air-tight whereby said ring-like formation having its open face covered by said elastic webbing constitutes an inflatable bag, said cylindrical webbing normally fitting into and forming with the interior of said bin above and below said ring-like formation the

cylindrical inside face of said storage bin, means to inflate said bag to expand said elastic webbing into said storage bin to occupy all free space therein and to compact said compressible material and means to deflate said bag.

3. A storage bin of a generally cylindrical shape having a ring-like formation located in the upper part thereof, a lid for said storage bin to close the top of said bin, the bottom of said bin being closed by compressible material stuffed thereinto, an elastic imporous webbing cylindrical in shape and having its upper and lower circular edges affixed to the edges of said ring-like formation at the intersection thereof with the said cylindrical bin, said affixation being air-tight whereby said ring-like formation having its open face covered by said elastic webbing constitutes an inflatable bag, said cylindrical webbing normally fitting into and forming with the interior of said bin above and below said ring-like formation the cylindrical inside face of said storage bin, means to inflate said bag to expand said elastic webbing into said storage bin to occupy all free space therein and to compact said compressible material and means to deflate said bag, said elastic cylinder of webbing being completely elastic and while deflated normally forming a smooth cylindrical surface substantially as a part of the surface of said storage bin.

4. A storage bin of a generally cylindrical shape having a ring-like formation located in the upper part thereof, a lid for said storage bin to close the top of said bin, the bottom of said bin being closed by compressible material stuffed thereinto, an elastic imporous webbing cylindrical in shape and having its upper and lower circular edges affixed to the edges of said ring-like formation at the intersection thereof with the said cylindrical bin, said affixation being air-tight whereby said ring-like formation having its open face covered by said elastic webbing constitutes an inflatable bag, said cylindrical webbing normally fitting into and forming with the interior of said bin above and below said ring-like formation the cylindrical inside face of said storage bin, means to inflate said bag to expand said elastic webbing into said storage bin to occupy all free space therein and to compact said compressible material and means to deflate said bag, said elastic cylinder of webbing being constructed of an inelastic fabric having strips of elastic affixed thereto for normally collapsing said cylinder into a short accordion-like folded cylinder constituting a part of the cylindrical surface of said storage bin.

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