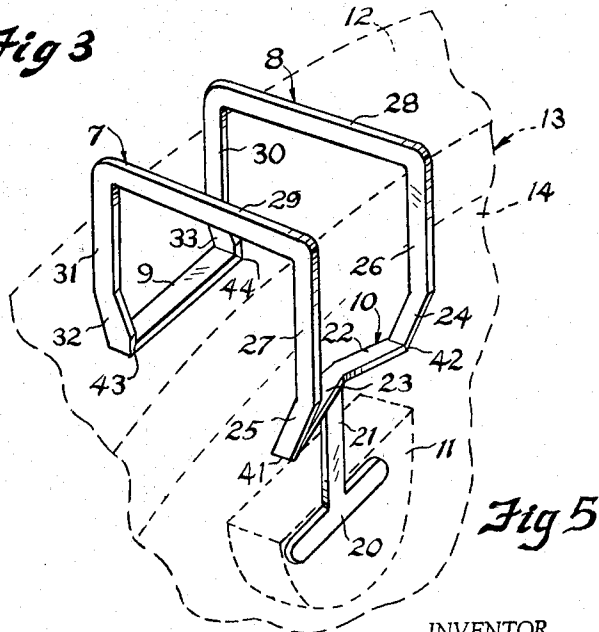
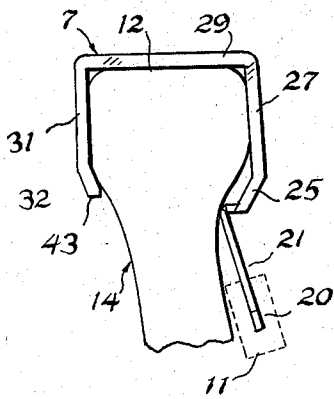
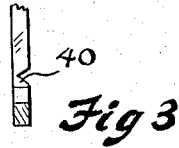
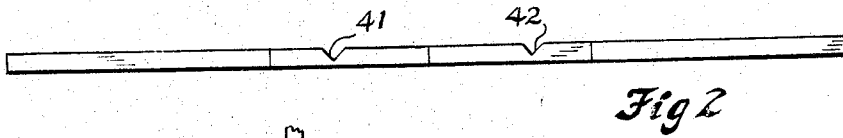
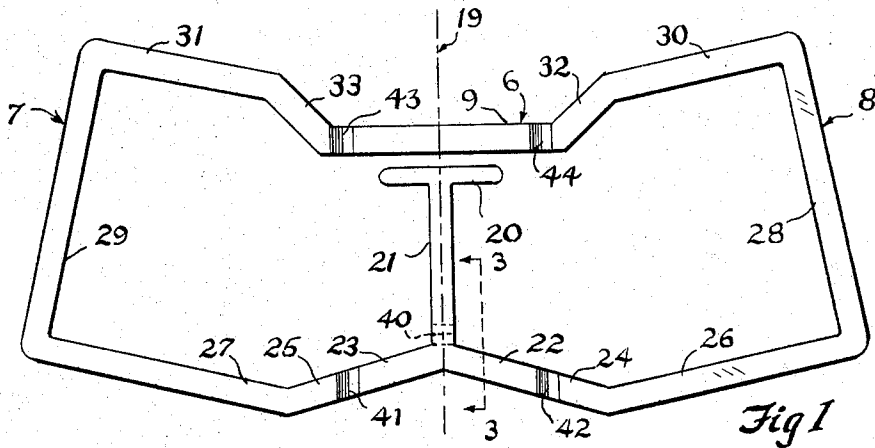


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TOILET BOWL DEODORIZER

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3,290,699

TOILET BOWL DEODORIZER

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This invention relates to a toilet bowl deodorizer and is more particularly concerned with an improved mounting frame or hanging bracket for the deodorant cake or block.

In the past, blocks of paradichlorobenzene have been extensively used to deodorize toilet bowls. Usually, metal hangers are employed for supporting the block of deodorant adjacent the inside portion of the rim of the toilet bowl; however, recently, plastic hangers have been employed for this purpose. These plastic hangers have been formed from either low impact polystyrene or polyethylene and have involved the use of expensive plastic molds for the production of the frame or bracket. U.S. Patent No. 2,984,841 and U.S. Patent No. 2,985,377 exemplify the prior art plastic frames.

Briefly, the present invention includes a hanging bracket which is formed from polypropylene and is produced from an initially flat blank which, after being formed, is bent to a prescribed shape to form a pair of parallel downwardly opening hooks, the cavities of which are aligned. The deodorant block is molded around the pivoted tongue of the bracket and, in use, is resiliently urged against the bowl by the bracket.

It is an object of the present invention, therefore, to provide, in a toilet bowl deodorizer, a mounting frame or hanging bracket which may be produced using an inexpensive die or mold.

Another object of the present invention is to provide a toilet bowl deodorizer having a hanging bracket which is rust free and corrosion free and is compatible with paradichlorobenzene.

Another object of the present invention is to provide a toilet bowl deodorizer in which the deodorant block is resiliently held by the holder against the inside surface of the bowl, as the holder fits closely around the upper rim of the bowl.

Another object of the present invention is to provide, in a toilet bowl deodorizer, a hanging bracket having a tongue which is readily and easily received in a conventional mold which functions to mold the paradichlorobenzene around the tongue.

Another object of the present invention is to provide, in a toilet bowl deodorizer, a hanging bracket sufficiently flexible that it may be readily and easily mounted on the upper edge of a toilet bowl and sufficiently rigid that it may not be inadvertently removed therefrom.

Another object of the present invention is to provide a toilet bowl deodorizer which is inexpensive to manufacture, durable in structure, and efficient in operation.

Another object of the present invention is to provide a toilet bowl deodorizer which is so constructed and arranged that a bag which encompasses only the deodorizer block will effectively shield the deodorizer block from the air.

Another object of the present invention is to provide a toilet bowl deodorizer in which the deodorizer block is more securely held by the hanging bracket and does not readily fall off after the deodorizer block has partially evaporated.

Other objects, features, and advantages of the present invention will become apparent from the following description when taken in conjunction with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views and wherein:

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FIG. 1 is a plan view of the blank from which the hanging bracket of the toilet bowl deodorizer of the present invention is produced.

FIG. 2 is a side elevational view of the hanging bracket blank shown in FIG. 1.

FIG. 3 is a cross-sectional view taken substantially along line 3-3 in FIG. 1.

FIG. 4 is a vertical sectional view of a portion of a conventional toilet bowl, the upper end of the bowl receiving the toilet bowl deodorizer of the present invention.

FIG. 5 is a perspective view of the toilet bowl deodorizer and toilet bowl portion illustrated in FIG. 4, the toilet bowl and the deodorizer block of the toilet bowl deodorizer being illustrated in broken lines for the purpose of illustrating the novel hanging bracket thereof.

Referring now in detail to the embodiment chosen for the purpose of illustrating the present invention, it being understood that in its broader aspects, the present invention is not limited to the exact details herein depicted, numerals 6, 7 and 8 denoting the three hingedly connected frame sections of the hanging bracket of the present invention while numeral 11 denotes the conventional paradichlorobenzene deodorizer block which is carried by the hanging bracket. In more detail, the frame sections 6, 7 and 8 form a continuous frame member which is initially flat so that the sections 6, 7 and 8 are coplanar, the side sections 7 and 8 being disposed on opposite sides of the central section 6 and being spaced opposed complementary U-shaped members. The arms of the side sections 7 and 8 project inwardly toward each other and converge slightly, the ends of these arms being joined by the cross-bars or cross straps 9 and 10 of the central section 6. The hinged connection between the sides of the central section 6 and the sides of the side sections 7 and 8 permit the side frames 7 and 8 to be pivoted about the central section 6 from their coplanar positions on opposite sides of the central section 6 to positions in parallel spaced relationship to each other and essentially perpendicular to the central section 6. In their parallel relationship, the side sections 7 and 8 form a pair of downwardly opening hooks connected at their lower ends by the cross straps 9 and 10 of the central section 6. These downwardly opening hooks, therefore, are adapted to fit around the upper edge portion 12 of a toilet bowl 13 so that one of the cross straps 9 is disposed on one side of the toilet bowl as the other of the cross straps 10 is disposed on the inner side of the toilet bowl 13.

The paradichlorobenzene block 11 is carried by a tongue which depends from the central portion of the inner cross strap 10, the tongue being an inverted T-shaped member disposed along the center line 19 of the hanging bracket, as will be more fully described hereinafter.

It will be understood that the hanging frame is a symmetrical member formed either by stamping the same from a sheet of plastic material or by injection molding of plastic material. While I prefer to employ polypropylene for producing the hanging bracket because of its unusual characteristics of inertness to paradichlorobenzene urine and water, other less desirable materials may be employed, if desired. Indeed, a metal may be employed for producing the hanging bracket without departing from the scope of my inventive concept of a hingedly joined three sectioned hanging bracket, even though I do not recommend the use of metal. The type of polypropylene which I employ and which appears to be suitable is known in the trade as "Profax" formula 6551 a product of Hercules Powder Company.

As seen in FIG. 1, the tongue includes a transverse hanger bar 20 which is suspended by its central portion from one end of a straight shank 21 disposed along center

line 19. The other end of the shank 21 is integrally connected to the apex of the V-shaped crossbar 10, the crossbar 10 including a pair of diverging arms 22 and 23 respectively connected to the ends of front straps 24 and 25. The outer ends of front straps 24 and 25 are connected at obtuse angles to the ends of the front bars 26 and 27, the outer ends of the front bars 26 and 27 being, in turn, connected to the ends of the top bars 28 and 29 at approximately right angles. The rear ends of the top bars 28 and 29 are connected at approximately right angles to the back bars 30 and 31 whereby the front bars 26 and 27 and back bars 30 and 31 are respectively parallel to each other, being spaced apart solely by the top bars 28 and 29. In the blank shown in FIG. 1, the back bars 30 and 31 protrude toward each other, the ends of the back bars 30, and 31, being connected at obtuse angles to the ends of back straps 32 and 33. The ends of the back straps 32 and 33 suspend therebetween the back transverse bar 9.

As viewed in FIG. 1 and, as initially formed, the mounting frame includes five hinged portions denoted respectively by numerals 40, 41, 42, 43 and 44. These hinged portions 40, 41, 42, 43 and 44 form junction of each formed by right angular V-shaped notches which extend through a substantial portion of the mounting frame. The hinged portion 40 is formed, as illustrated in FIGS. 1 and 3, on the back side of the mounting frame at the junction of the shank 21 and the apex of the arms 22 and 23 and extends transversely of center line 19. In this way, limited movement of the shank 21 in pendulum fashion about the arms 22 and 23 is provided for. The hinged portions 41 and 42 are provided on the front side of the blank, between the ends of the front bars 22 and 23 and the ends of the front straps 24 and 25, the hinge portions 41 and 42 being disposed equidistant from and on opposite sides of the center line 19 of the hanging bracket. The hinge portions 43 and 44 are also disposed on the front side of the blank and are between the ends of back straps 32 and 33 and the ends of the back crossbar 9. Thus, the hinge portions 43 and 44 are disposed equidistant on opposite sides of the center line 19.

As seen in FIGS. 1 and 2, the V-shaped notches which form the hinge portions 41 and 43 are formed running parallel to the center line 19 and in alignment with each other. In like manner, the V-shaped notches which form the hinge portions 42 and 44 are disposed along a line parallel to the center line 19 and are in alignment with each other. Hence, as viewed in FIG. 1, if the crossbars 9 and 10 of the central section 6 were held in a stationary position, the outer wings or sides sections 7 and 8 of the hanging bracket may be respectively folded upwardly until the pairs of bevelled surfaces formed by each of the notches of hinged portions 41, 42, 43 and 44 abut each other, at which time the side sections 7 and 8 are disposed essentially parallel to each other and perpendicular to the central section 6 of the hanging frame. The junctions formed by hinged portions 41, 42, 43 and 44, therefore are deformed sufficiently for the orienting of the side sections 7 and 8 in their parallel positions.

If desired, heat sufficient to cause flow of the plastic may be applied to the hinge portions 41, 42, 43 and 44 so as to reorient the structure of the plastic to their deformed conditions so that the wings or side sections 7 and 8 remain parallel to each other and perpendicular to the central section 6. Furthermore, glue may be employed on the bevelled surfaces in place of the application of heat so as to retain the hinged portions 41, 42, 43 and 44 in their deformed conditions.

It will be understood by those skilled in the art that in the deformed condition, such as illustrated in FIG. 5, the hanging frame is suitable for fitting over the upper edge or rim 12 as described above, regardless of whether glue or heat has been applied to hinged portions 41, 42, 43 and 44, and that the top bars 28 and 29 are disposed parallel to each other and extend laterally across the top portion of the rim 12. The back bars 30 and 31 then

depend or project downwardly from the outer ends of the top bars 28 and 29 while the front bars 26 and 27 depend or project downwardly from the inner ends of the top bars 28 and 29. The front straps 24 and 25 project downwardly and inwardly toward bowl 13 from the lower ends of the front bars 26 and 27 and support, therebetween, the outwardly converging arms 22 and 23 of crossbar 10.

The back straps 32 and 33 likewise project downwardly and inwardly from the back bars 30 and 31 and support at their lower ends of the crossbar 9, the front straps 24 and 25 converging downwardly toward the back straps 32 and 33.

In the blank illustrated in FIG. 1, the T-shaped tongue, i.e., hanger bar 20 and shank 21 project from the central portion of crossbar 10, toward crossbar 9, with the hanger bar terminating in spaced relationship to the crossbar 9. Therefore, the tongue is disposed between the two crossbars 9 and 10 when the hanging frame is initially formed. In use, the tongue is pivoted downwardly (in a direction opposite to the direction of pivoting of the side sections 7 and 8) about hinged portion 40 so as to terminate in the position shown in FIG. 5. The straight hanger bar 20 is, however, at all times approximately parallel to the front crossbar 10. It is not deemed necessary, after pivoting the tongue, to glue or heat treat hinged portion 40 since the tendency to retain the tongue to its initial position is a desirable feature. It will be understood, of course, that the setting of hinge 40 by glue or heat will not, however, depart from any inventive concept but will, in my opinion, detract from the performance of my hanging bracket by eliminating the bias on the tongue.

In the process of manufacture, the pivoted tongue permits the remaining portion of the hanging bracket to be disposed on the outside of a die as the free portion of the tongue protrudes into the die to receive block 11. The block 11 is, of course, compressed around the entire hanger bar 20 and the lower portion of shank 21, so as to be disposed equally on both sides of the tongue, the shank 21 protruding outwardly from block 11.

As stated above, the deodorant block 11 is formed around the crossbar 20 and the lower portion of the shank 21, as illustrated in FIG. 5 and hence, when the hanging bracket is disposed over the rim 12 of a toilet bowl 13, the hinge 40, which is disposed transversely with respect to the hinges 41, 42 and 43 and 44, permits the tongue, i.e., the shank 22 to project angularly with respect to the crossbar 10, as illustrated in FIG. 4. The hinge 40, however, resiliently urges or biases the tongue or shank 21 outwardly and thereby urges the block 12 against the inside surface 14 of the bowl 13. This tends to clamp a portion of the block 12 between the tongue and surface 14 so that even though the front portion of block 11 is evaporated away, exposing the tongue, the clamped portion of block 12 will be retained.

While in the preferred embodiment I have illustrated the elements of the hanging bracket as being rectangular in cross-section, so that it is edgewise with respect to the toilet bowl 13 to provide added resistance to being sprung as the bracket is fitted over the rim 12, other less desirable cross-sectional shapes may be employed, if desired. Furthermore, while I prefer to employ polypropylene as a plastic material for the hanging bracket, it will be apparent that other plastics are suitable, provided the plastic is compatible with paradichlorobenzene or other deodorants which is employed and is inert to urine and water. Furthermore, the plastic material should have a resiliency sufficient that the hanging bracket may be flexed when the bracket is fitted over the rim 12 of the toilet bowl 13. Furthermore, the plastic material should be sufficiently rigid that there is no danger of the bracket being inadvertently dislodged from the rim 12. The rectangular cross-sectional shape of the hooks 7 and 8 with the longer or wider portion of the plastic material in the planes of

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the hooks 7 and 8 provides sufficient rigidity with a minimum of material while permitting limited flexing of the inner and outer arms sufficient for the arms to be fitted over the rim 12.

When the toilet bowl deodorizer of the present invention is shipped, it is preferable to enclose the same in a bag such as polyethylene or acetate bag so as to protect a paradichlorobenzene from the atmosphere. Since the shank 21 is relatively small and a bag fitted around the block 11, has a neck which may be closed against the single shank 21, there is no necessity for enclosing the entire structure in a bag for sealing of the block 11 from the atmosphere to an extent sufficient to protect the block 11.

In use, since the block 11 is resiliently urged against the wall 14 of the toilet bowl, the danger of the block being struck by a cleaning tool is minimized.

It will be obvious to those skilled in the art that many variations may be made in the embodiment herein chosen for the purpose of illustrating the present invention and that modifications, additions, and deletions may be made to the structure here disclosed without departing from the scope of the present invention as defined by the appended claims.

I claim:

1. In a hanging bracket for a toilet bowl deodorizer, a frame having a central section and a pair of opposite side sections hingedly secured together, each side section being generally U-shaped in configuration and foldable on its leg portions through aligned hinged areas about an opposite side of said central section, said central section including a pair of spaced apart crossbars extending between corresponding hinged areas of said opposite side sections and a deodorizer support secured to one of said crossbars.

2. A toilet bowl deodorizer comprising a block of compressed paradichlorobenzene, a hanging bracket formed from polypropylene, said hanging bracket integrally including a hanger bar embedded in said block, a shank extending from the central portion of said hanger bar through and outwardly of said block, a front crossbar having a pair of diverging arms joined at an apex, the end of said shank being connected to an intermediate portion of said front crossbar and extending downwardly from said front crossbar, a pair of spaced parallel front bars connected to the ends of said arms and extending upwardly therefrom in a direction opposite to the direction from in which said shank extends from said front crossbar, a pair of top bars connected at their ends to the ends of said front bars and projecting laterally therefrom, a pair of back bars connected by their ends to the ends of said top bars and projecting downwardly from said top bars, and a back crossbar extending between the lower ends of said back bars, said front bars and top bars and back bars lying in two approximately parallel planes and each having a rectangular cross-section and being adapted to be disposed edge-wise over said rim of said toilet bowl.

3. A toilet bowl deodorizer comprising a block of paradichlorobenzene, a hanging bracket formed from polypropylene, said hanging bracket integrally including a hanger bar embedded in said block, a shank extending from the central portion of said hanger bar through and outwardly of said block, a front crossbar having a pair of diverging arms joined at an apex, the end of said shank being connected to said front crossbar at approximately the apex of said arms so that said shank extends downwardly from said front crossbar, a pair of spaced parallel front bars connected to the ends of said arms and extending upwardly therefrom in a direction opposite to the direction in which said shank extends from said front crossbar, a pair of top bars connected at their ends to the ends of said front bars and projecting laterally therefrom, a pair of back bars connected by their ends to the ends of said top bars and projecting down-

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wardly from said top bars, and a back crossbar extending between the lower ends of said back bars, the junctions of said back bars and said back crossbar each including a portion of substantially less thickness than the thickness of said back bars and the thickness of said back crossbar and being in a deformed condition for orienting said back bars and said back crossbars in angularly related relationship, the junctions of said front bars and said crossbar each including a portion of substantially less thickness than the thickness of said front bars and the thickness of said front crossbar and being in a deformed condition for orienting said front bars and said back crossbars in angularly related relationship.

4. A toilet bowl deodorizer comprising a block of paradichlorobenzene, and a hanging bracket formed from polypropylene, said hanging bracket integrally including a hanger bar embedded in said block and extending transversely therein, a shank extending longitudinally along the vertical center line from the central portion of said hanger bar through and outwardly of said block, a front crossbar approximately parallel to said hanger bar and having a pair of diverging arms joined at an apex, the end of said shank being connected to said front crossbar at approximately the apex of said arms so that said shank extends downwardly from said front crossbar, a pair of spaced parallel front bars connected to the ends of said arms and extending upwardly therefrom in a direction opposite to the direction in which said shank extends from said front crossbar, a pair of top bars connected at their ends to the ends of said front bars for forming first junctions spaced equally from and on opposite sides of said center line, said top bars projecting laterally from said front bars, a pair of back bars connected by their ends to the ends of said top bars for forming second junctions spaced equally and on opposite sides of said center line and aligned respectively with said first junctions, said back bars projecting downwardly from said top bars, and a back crossbar extending between the lower ends of said back bars, the junctions of said back bars and said back crossbar each including a portion of substantially less thickness than the thickness of said back bars and the thickness of said back crossbar and being in a deformed condition orienting said back bars and said back crossbars in angularly related relationship, the junctions of said front bars and said crossbar each including a portion of substantially less thickness than the thickness of said front bars and the thickness of said front crossbar and being in a deformed condition orienting said front bars and said back crossbars in angularly related relationship.

5. A toilet bowl deodorizer comprising a block of compressed paradichlorobenzene, a symmetrical frame hanging bracket formed from polypropylene, said hanging bracket integrally including a hanger bar embedded in said block and extending transversely therein, a shank extending longitudinally along the vertical center line of said hanging bracket from the central portion of said hanger bar through and outwardly of said block, a front crossbar approximately parallel to said hanger bar and having a pair of diverging arms joined at an apex, the end of said shank being connected at a first transversely extending junction to said front crossbar at approximately the apex of said arms so that said shank extends downwardly from said front crossbar, a pair of spaced parallel front bars connected at second junctions to the ends of said arms and extending upwardly therefrom in a direction opposite to the direction in which said shank extends from said front crossbar, a pair of top bars connected at their ends to the ends of said front bars and projecting laterally therefrom, a pair of back bars connected by their ends to the ends of said top bars and projecting downwardly from said top bars, and a back crossbar connected at third junctions to and extending between the lower ends of said back bars, said second junctions each including a portion of substantially less thickness

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han the thickness of said front bars and the thickness of said front crossbar and both being in a deformed condition for orienting said front bars and said front crossbar in angularly related relationship, said third junctions each including a portion of substantially less thickness than the thickness of said back bars and the thickness of said back crossbar and both being in a deformed condition for orienting said front bars and said back crossbars in angularly related relationship.

6. A blank for a hanging bracket of a toilet bowl of plastic material and having a central portion and a pair of opposite side portions hingedly connected to and foldable about the sides of said central portion to positions angularly related with respect to said central portion, said side portions being characterized by a pair of opposed U-shaped hooks, the arms of which project inwardly toward each other, said central portion including a pair of crossbars extending between the ends of corresponding arms of the said opposite side portions and connected thereto through hinged areas, said hinged areas connecting each side portion to one side of said central portion being in alignment, said central portion also including means for suspending a deodorant block from one of said crossbars.

7. A blank for a hanging bracket of a toilet bowl deodorizer comprising, a flat frame member composed of polypropylene and having a central portion and a pair of side portions connected to the sides of said central portion and foldable to positions essentially parallel to each other about the sides of said central portion, said side portions being characterized by a pair of opposed U-shaped hooks, the arms of which project inwardly toward each other, said central portion including a pair of

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crossbars connecting the ends of said arms, said central portion also including a T-shaped tongue having a shank and a hanger bar for suspending a deodorant block from one of said crossbars, said shank being connected by one end to an intermediate portion of said one of said crossbars.

8. A blank for a hanging bracket of a toilet bowl deodorizer comprising a flat frame member composed of polypropylene and having a central portion and a pair of side portions connected to the sides of said central portion and foldable to positions essentially parallel to each other about the sides of said central portion, said side portions being characterized by a pair of opposed U-shaped hooks, the arms of which project inwardly toward each other, said central portion including a pair of crossbars connecting the ends of said arms, a shank extending from one of said crossbars inwardly toward the other of said crossbars, a hanger bar carried by said shank at its end, said shank being foldable out of the plane of said central section in a direction opposite the direction of foldability of said side sections.

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