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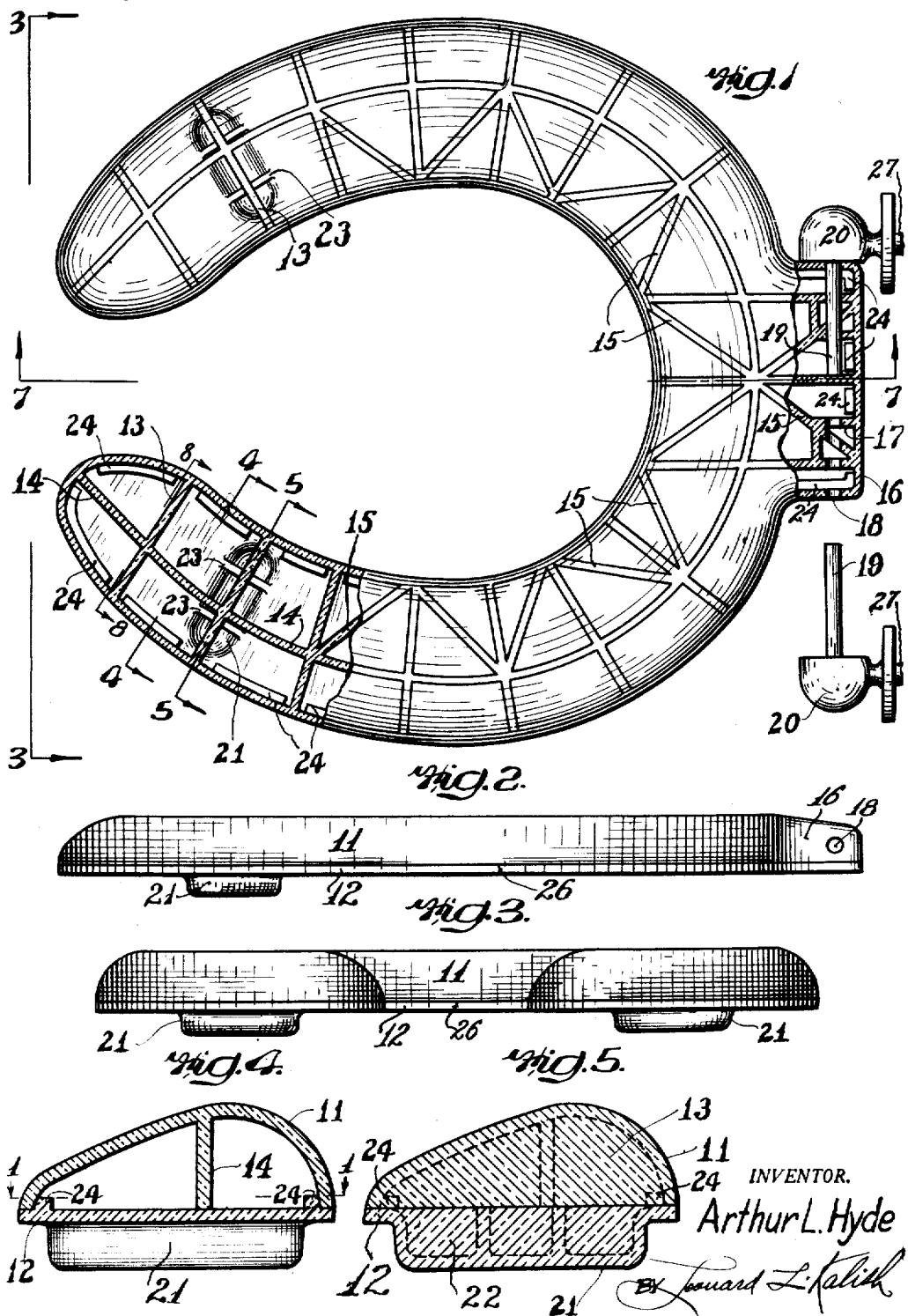
A. L. HYDE

2,540,620

### HOLLOW TOILET SEAT

Filed Sept. 29, 1945

2 Sheets-Sheet 1



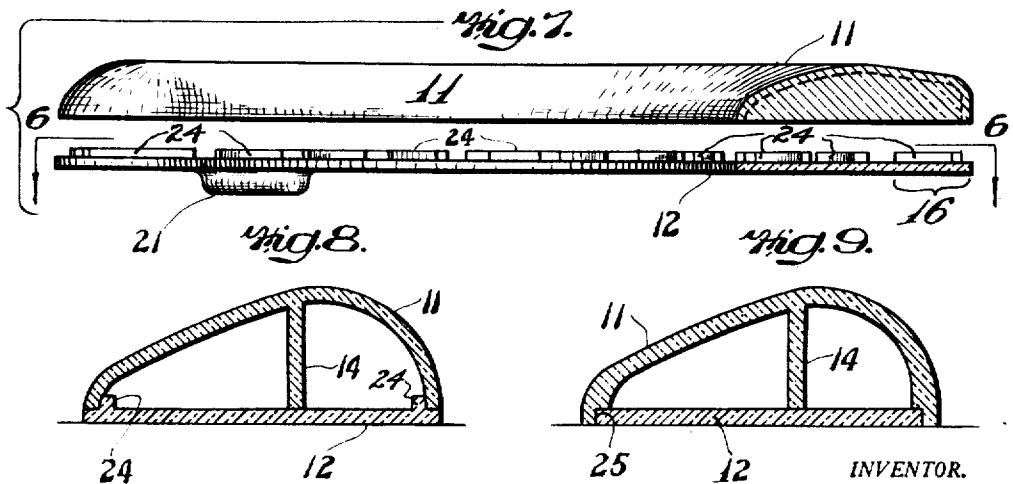
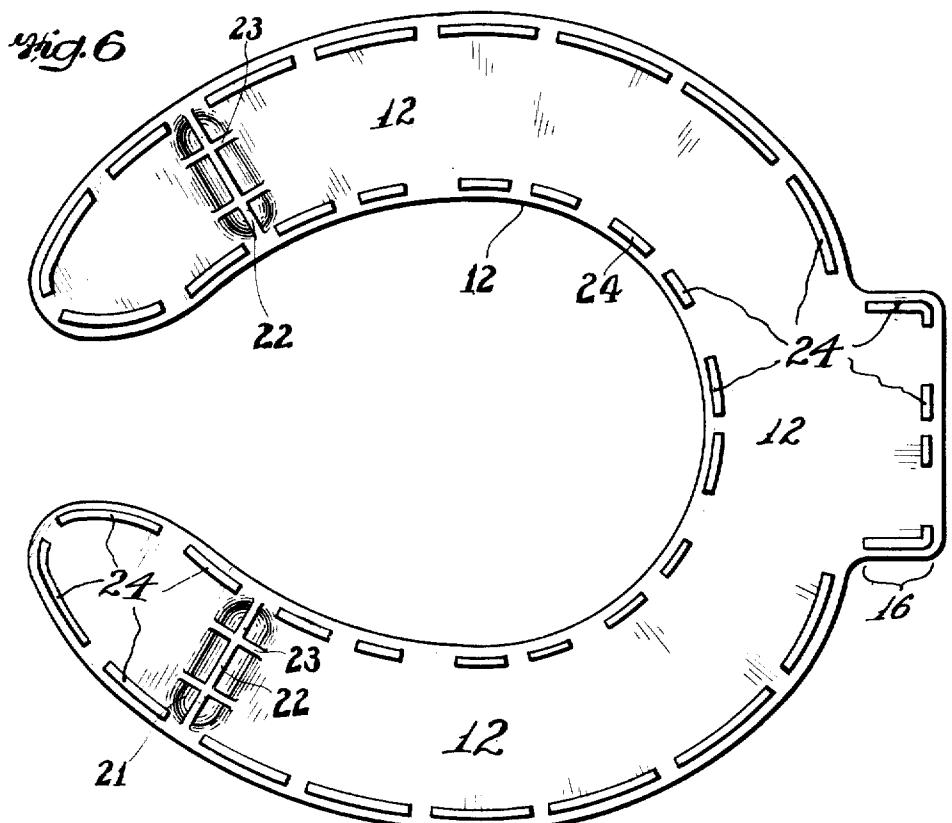
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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

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## HOLLOW TOILET SEAT

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4 Claims. (Cl. 4—237)

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The present invention relates to toilet seats and the like, and it is an object of the present invention to provide a hollow and generally integral seat of round or oval ring shape, or generally U-shape, which will be strong, sightly and sanitary and which will not lose its surface finish as a result of continued wear (as is the case with painted or otherwise coated seats), which will not warp, and yet will be of light weight, and which may be produced and sold at low cost.

For the purpose of illustrating the invention, there are shown in the accompanying drawings forms thereof which are at present preferred, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangements and organizations of the instrumentalities as herein shown and described.

In the accompanying drawings, in which like reference characters indicate like parts,

Figure 1 is a top plan view of a toilet seat embodying the present invention, partly in horizontal cross-section along the line 1—1 of Figure 4, and with the internal webbing shown in full lines, throughout, as though the top seat-forming wall were transparent, and with the screw-posts of the hinge members turned into a horizontal position, so as to show the base-flanges thereof and screw-posts thereof (although the major portions of the screw-posts are omitted).

Figure 2 is a side elevational view of my device.

Figure 3 is a front elevational view.

Figures 4 and 5 are transverse cross-sectional views on an enlarged scale on lines 4—4 and 5—5 of Figure 1, respectively.

Figure 6 is a top plan or upper face view of the bottom portion of the seat taken on the line 6—6 of Figure 7.

Figure 7 is an exploded view of a side elevation with parts broken away in vertical cross-section on line 7—7 of Figure 1.

Figure 8 is a view of a transverse cross-section, shown on line 8—8 of Figure 1, on a larger scale.

Figure 9 is a cross-sectional view similar to Figure 8, but showing a modified form of construction.

The drawings show a hollow, molded, internally reinforced seat. In Figure 1, where the top wall is not broken away, the tops of the webs 13 and 14 (hereinafter more fully referred to) are shown in full lines as though the top wall were transparent. This is for purposes of convenience of illustration only, as the material of which the

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seat is made will generally be opaque (although it may be made of transparent or translucent plastic).

As is shown in Figure 7, this seat is made of two parts, designated 11 and 12. The upper part 11 has a plurality of transverse integral webs 13 therein, as will as a longitudinally extending web 14 which is parallel to the curved side edges of this part. Further reinforcement may be provided by diagonally extending webs 15 forming braces between some of the webs 13 and 14. Part 11 is also provided with a rearwardly extending portion generally indicated at 16 on Figure 1 and containing journal-forming reinforcing webs 17. Webs 17, as well as the side walls of part 16, contain aligned holes 18, together forming journals or pivot-bearings, into which trunnions 19 of the conventional brackets or supports 20 may be placed. The brackets or supports 20 are mounted on the bowl and support the seat in the conventional manner.

As is best seen in Figures 1, 5 and 6, the lower member 12 has a pair of bumpers or stops, generally indicated at 21 thereon. These bumpers are preferably reinforced by transversely extending webs 22 and longitudinally extending webs 23.

Parts 11 and 12 are each separately made in a single operation by molding under suitable conditions of heat and pressure. The mold in which these parts are made has suitable passages therein through which the material, from which the parts are molded, flows to form the webs and reinforcing members. This molding can conveniently be done by injection. A suitable material for forming these parts is a synthetic resin, preferably thermo-plastic, such as cellulose acetate, cellulose acetate butyrate, polystyrene, or methyl methacrylate. Of these, cellulose acetate butyrate is considered most desirable. For making opaque and white seats, a white pigment is generally added. If it is desired to tint these seats to any color other than white, a suitable pigment may be added to the mix before the molding operation is performed. In either case (i. e. white or tinted) the white or tinted pigment or dye is diffused or dispersed uniformly throughout the parts and gives a uniform color throughout the seat. This color is not lost if the seat is chipped or marred.

The separate parts 11 and 12 are then united by placing them one upon the other in the position shown in Figures 4 and 5 and Figures 8 and 9. Usually a solvent or solvent-like cement is applied to the two surfaces which are to be

joined together. Instead, if desired, the adjoining faces of the parts 11 and 12 can be coated with a synthetic resin having a slightly lower setting temperature than the material of which the parts 11 and 12 are made and the parts pressed together while suitably heated. This will cause the two parts to unite together without causing damage to the internal structure thereof. Or the juncture-edges may be heated and then pressed together without any other material. The parts 11 and 12, whether or not treated with solvent, solvent-like cement or synthetic resin, are joined together by the application of pressure into the single unitary structure shown in Figures 1-5 of the drawings, which is integral in the fullest sense and of uniform and homogeneous composition throughout, and without any apparent juncture lines.

Figure 4 shows how the edges of the upper part 11 and of the longitudinal ribs 14 abut the part 12.

As is best seen in Figure 6, lower part 12 has a plurality of ribs 24 standing up from its upper surface. These ribs 24 are arranged to extend within the upper part 11 in juxtaposition to the sides of the upper part 11 and thus align the two parts 11 and 12 while being joined together for integral union.

Figure 5 shows that a transverse web 13 of part 11 may, as desired, overlie and be united with a transverse web 22, of part 12, to provide further vertical support for the bumper 21.

Figure 8 shows the telescoping of the ribs or legs 24 of the bottom part 12 into the sides of the upper part 11 to align these parts for the ultimate union between them. The ribs 24 may be continuous around the entire periphery of the lower member 12 or they may be just short, spaced at suitable intervals, as indicated in Figures 1, 6 and 7.

In Figure 9, there is shown a further modification, in which the lower edge of the upper part 11 is recessed or rabbeted as at 25, so as to receive the lower part 12 in this recess or rabbet.

Either of these constructions of Figures 8 and 9 provides a flush lower surface, and may substantially eliminate any visible line at the juncture of the two parts (11 and 12) when the seat is finished (the line 26 in Figures 2 and 3 being placed in the drawing merely to show the line along which the parts 11 and 12 had been joined (it being understood that in the finished product this line should not show or be apparent).

Although my device has been shown as being generally of a U or horseshoe shape, it will be readily understood that it can be made of a complete oval ring.

The hollow space within the seat may be employed for the circulation of a disinfecting or cooling or heating fluid therethrough, or a device for the emission of ultra-violet or infra-red rays for germicidal purposes may be placed in said space.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having thus described my invention, I claim as new and desire to protect by Letters Patent:

1. A hollow and relatively thin-walled and relatively rigid toilet seat including an upper seat

member of generally homogeneous thermo-plastic synthetic resin, whose relatively thin wall is curvilinear in cross-sections along vertical radial planes, with said curvilinear wall having its terminating edges facing downwardly and in a generally single plane, a relatively thin and relatively flat bottom member of generally homogeneous thermo-plastic synthetic resin, with the upper marginal zones of its upper generally horizontal surface, along its inner and outer perimeters, integrally united with the downwardly facing edges of said upper seat member throughout its inner and outer perimeters and throughout the downwardly facing generally plane edge-surfaces of said curvilinear wall, with the lateral edges of said generally thin and generally flat bottom member being fully exposed, relatively thin stiffening webs formed integrally with one of said members, and generally hollow thin-walled internally reinforced bumpers carried by and extending downwardly from said generally thin and generally flat bottom member beneath and in vertical alignment with a stiffening web and formed integrally with said bottom member.

2. A hollow and relatively thin-walled and relatively rigid toilet seat including an upper seat member of generally homogeneous thermo-plastic synthetic resin, whose relatively thin wall is curvilinear in cross-sections along vertical radial planes, with said curvilinear wall having its terminating edges facing downwardly and generally in a plane, a relatively thin and relatively flat bottom member of generally homogeneous thermo-plastic synthetic resin, with the upper marginal zones of its upper generally horizontal surface, along its inner and outer perimeters, integrally united with the downwardly facing edges of said upper seat member throughout its inner and outer perimeters and throughout the downwardly facing generally plane edge-surfaces of said curvilinear wall, with the lateral edges of said generally thin and generally flat bottom member being fully exposed, relatively thin stiffening webs formed integrally with one of said members, and generally hollow thin-walled internally reinforced bumpers carried by and extending downwardly from said generally thin and generally flat bottom member and formed integrally with said bottom member.

3. A hollow and relatively thin-walled and relatively rigid toilet seat including an upper seat member of generally homogeneous thermo-plastic synthetic resin, whose relatively thin wall is curvilinear in cross-sections along vertical radial planes, with said curvilinear wall having its terminating edges facing downwardly, a relatively thin and relatively flat bottom member of generally homogeneous thermo-plastic synthetic resin, with its inner and outer perimeters integrally united with the downwardly facing edges of said upper seat member throughout its inner and outer perimeters, relatively thin stiffening webs formed integrally with one of said members, and relatively thin-wall hollow bumpers carried by and extending downwardly from said generally thin and generally flat bottom member beneath and having an internal reinforcing rib in vertical alignment with a stiffening web and formed integrally with said bottom member.

4. A hollow and relatively thin-walled and relatively rigid toilet seat including an upper seat member of generally homogeneous thermo-plastic synthetic resin, whose relatively thin wall is curvilinear in cross-sections along vertical radial planes, with said curvilinear wall having

its terminating edges facing downwardly, a relatively thin and relatively flat bottom member of generally homogeneous thermo-plastic synthetic resin, with the upper marginal zones of its upper generally horizontal surface, along its inner and outer perimeters, integrally united with the downwardly facing edges of said upper seat member throughout its inner and outer perimeters and throughout the downwardly facing plane edge-surfaces of said curvilinear wall, relatively thin stiffening webs formed integrally with one of said members, and relatively thin-walled hollow bumpers having internal reinforcing ribs carried by and extending downwardly from said generally thin and generally flat bottom member. 15

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