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(54) COMBINATION WATER CLOSET AND BIDET

(71) I, MANFRED IBEL, a citizen of the United States of America, of 178, Fifth Avenue, New York, State of New York, United States of America, do hereby declare the invention for which I pray that a patent may be granted to me and the method by which it is to be performed to be particularly described in and by the following statement:-

The present invention relates to composite water closets and bidets, and more particularly to a unitary structure including the facilities of a water closet and a bidet in a compact configuration which is easy to use.

The concept of a combination water closet and bidet is relatively old, having been disclosed at least as early as 1881 in U. S. Patent No. 244,219. The basic arrangement for bidets with water closets is to provide a bidet which is adapted to be mounted on a pre-existing water closet or toilet, that was not originally designed for use with the bidet structure. Many of these combined water closet and bidet bowls simply consist of the concept of a removable basin adapted to be seated on the conventional toilet seat, as for example is disclosed in the above mentioned patent and also in U. S. Patent Nos. 2,947,994; 3,072,918; 3,490,079; 3,577,567; and 3,654,636. Other types of combination water closet and bidets provide a bidet basin which is mounted on either the conventional toilet seat itself or on the water closet or bowl. This is shown for example in U. S. Patent Nos. 1,348,518; 1,612,665; 1,655,864 and 3,879,769. Perhaps the most work in this area, at least with respect to patented combined water closets and bidets, appears to have been performed during the 1930's by Ippolito Salvoni, who was awarded a large number of patents on a variety of different types of combined water closet and bidet structures; these patents include Patent Nos. 2,036,984; 2,036,985; 2,070,622; 2,075,061; 2,075,830; and 2,104,210.

In almost all of the above mentioned combination water closet and bidet, a bidet basin is provided which is adapted to be mounted on a pre-existing water closet facility. Thus the bidet basin is an afterthought, which must be accommodated to the limitations of the existing water closet. As a result fairly complicated mounting arrangements are provided for the bidet basin, and relatively complicated water supply conduits and arrangements must be provided. In addition, because the bidet basin is, in effect, an afterthought, the resulting structure has an extremely awkward and unpleasant appearance, since the parts are not matched to each other in a unitary integral design. As a result, although the use of bidets is popular where they are available, because of their complexity and unsightly appearance combination water closet and bidet structures, such as described in the above mentioned patents, have not become popular or commercially available.

Accordingly, it is an object of the present invention to provide a composite or combined water closet and bidet which has a compact and attractive appearance, which is sanitary to use and relatively easy to clean and maintain, and in which the elements mate and cooperate with each other.

Yet another object of the present invention is to provide a composite water closet and bidet which can be readily and comfortably used as either a water closet or a bidet and which is particularly adapted for mass production.

The present invention provides a composite water closet and bidet wherein said water closet is adapted to receive said bidet and said bidet is adapted to be received by said water closet; said water closet including a bowl defining a water basin and a siphon

passageway in fluid communication with said water basin, said water closet having an upper peripheral rim surrounding said water basin including a rear edge portion; a toilet seat pivotally mounted on said bowl adjacent said rear edge portion and overlying said rim, said bidet comprising a bidet basin having a bidet seat portion and a bidet basin portion, said bidet seat portion normally overlying said toilet seat and being pivotally connected adjacent said rear edge portion of said rim, said bidet basin portion having an upper edge and being integrally connected along said upper edge and being integrally connected along said upper edge to the inner peripheral edge of said bidet seat portion and extending through the opening of said seat and being received by said water basin, said toilet seat and said bidet seat portion having a generally similar configuration in plan.

The invention will now be further described, by way of example, with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view of one embodiment of a composite water closet and bidet constructed in accordance with the present invention;

Figure 2 is a side elevational view of the device illustrated in *Figure 1*;

Figure 3 is a front elevational view of the device illustrated in *Figures 1*;

Figure 4 is a perspective view of the device shown in *Figure 1* illustrating the water closet seat and the bidet basin in partially raised positions;

Figure 5 is an elevational sectional view of the device shown in *Figure 1*;

Figure 5a is an enlarged partial side view showing the hinge arrangement for the water closet seat and bidet basin by which these elements are pivotally mounted on the bowl;

Figure 6 is a plan view of the apparatus shown in *Figure 1* with the bidet basin down;

Figure 7 is a plan view, similar to *Figure 6*, but with the bidet basin removed; and

Figures 8 is a plan view, similar to *Figure 7*, but with the toilet seat and water tank removed.

Referring now to the drawings in detail, and initially to *Figures 1-5* thereof, a composite or combination water closet and bidet device or facility 10 is illustrated. The composite facility includes a bowl 12, which may be formed of a ceramic material in the conventional manner, having a base 14, an upper portion which defines a water basin 16, and a peripheral upper rim 18 surrounding the top edge of the water basin. Rim 18 has a rear extension 20 on which a water tank 22 is mounted in any convenient manner. The tank has a top 24, which is removably seated on the body of the tank

22, as seen in *Figure 5*. Tank 22 serves to contain a supply of water, in the conventional manner, for use in flushing bowl 12, upon operation of the flush handle 26. A flushing mechanism (not shown) is contained within the tank 22 to permit the bowl to be flushed.

As illustrated in *Figure 5*, tank 22 communicates with the water basin formed in the upper portion 16 of bowl 12 through a bottom opening 27 and a water passage 28 formed in the bowl. The water passage permits water to flow from tank 22 when opening 27 is opened upon operation of the flushing mechanism 26, into the water basin 16 in bowl 12, in the conventional manner. The water from the water basin of bowl 12 then flows through a siphon passage 30 to a drain 32 in the conventional manner. It is noted that siphon passage 30 has a relatively low profile so that the water level 33 in basin 16 is maintained at a relatively low level, for reasons described hereinafter, but that level is at least three inches above the drain opening 34 in the bottom of the bowl, as required by most sanitary codes.

The composite facility of the present invention is adapted to be used both as a conventional toilet and as a bidet. For this purpose bowl 12 is provided with a seat 36 that is pivotally mounted by removable pins 38 or the like at the rear edge of the seat on bowl 12.

In the illustrative embodiment of the invention rim 18 of the bowl has a generally oval shape, including relatively straight flat sides 40 extending parallel to each other, with a curved or arcuate front end 41 and a relatively curved rear end portion 42. The bowl is provided in dimensions approximately equal to the standard dimensions of conventional toilet facilities, but the length of the opening 44 defined by the rim 18 to the basin 16 is somewhat larger than conventional toilet facilities.

Seat 36 has a peripheral configuration which is substantially complementary to the peripheral configuration of bowl rim 18, and has an opening 46 formed therein. As illustrated in *Figure 7*, the seat provides a seating surface 48 for the user, with opening 46 having a generally pear shaped configuration. That is, opening 46 is generally complementary at its front and rear ends 50, 52 respectively to the front and rear edge configuration of the inner edge of the rim 18, but is provided with inwardly extending extensions 54 that provide additional seating support for the user, particularly since the length of opening 46 is somewhat larger than the normal size opening in conventional toilet facilities. This arrangement enables the user to sit on the forward portion of the seat.

A bidet 60 is also pivotally mounted on bowl 12 above seat 36. This bidet basin is

preferably formed as an integral molded plastic element, including an outwardly extending flange 62 and an integral basin 64. As illustrated in Figure 6, flange 62 is generally complementary in its peripheral configuration to the peripheral configuration of seat 36 and bowl rim 18. Flange 62 also is generally complementary to the seating surface 48 of toilet seat 36, but is slightly wider than seat 46 so that the basin 64 of the bidet is slightly smaller than toilet seat opening 46 and the basin can extend through that opening into the upper portion of bowl 12, as illustrated in Figure 4.

Bidet 60 includes a pair of integral passages 66, 68 formed therein for supplying water to the interior of the bidet basin 64. Passage 66 has a plurality of openings 70 formed therein along its inner side, as illustrated in Figure 5, to provide a rim flow of water to the basin. Passage 68 terminates in an upwardly directed nozzle 72 in the bottom portion of bidet basin 64, to provide a cleansing spray in the bidet. In use, a person will sit on the bidet facing tank 22 and use the water in basin portion 64 and from spray 72 in the conventional manner for a bidet. In this connection it is noted that the inner edge of flange 62 on the bidet extends inwardly above the bidet above opening 70 (see Figure 5) to prevent water discharged from these openings from spraying or splashing upwardly.

To facilitate drainage of bidet basin 64, the bottom of the basin is provided with an opening 74 which is selectively opened and closed by a manually removable stopper 76 or the like. In addition bidet basin 64 includes a rear opening 78 formed as an overflow drain therein at its upper edge adjacent flange 62. A shield 80 is formed behind the opening in spaced relations thereto to direct water downwardly along the underside of bidet basin 64. Thus, when the bidet is moved from its normal position illustrated in solid lines in Figures 5 to its raised dotted line position in Figures 5 and 5a, any water remaining in basin 64 will flow towards rear opening 78 and pass there-through, to be redeposited into bowl 12.

The rear edge 20 of bowl 12, as illustrated in Figures 4, 5 and 5a, includes a stepped surface portion 82 having a first upwardly facing step 84 and a second upwardly facing step 86 extending between two abutment walls 88 (see Figures 4 and 8) at opposite sides of bowl rim 18. The rear end 90 of seat 36 is pivotally mounted above step surface 84, by the pivot pins 38 which extend through abutment walls 88. Preferably these pins are formed of stainless steel or the like to reduce friction, and are removable, so that the seat can be easily removed to facilitate cleaning of step 84.

Likewise, the rear end 92 of bidet 60 is

pivotally mounted between abutment walls 88 by removable stainless steel pins 94 or the like. The pivotal connection of bidet 60 to bowl 12 is located above step surface 86, rearwardly of the pivotal connection of seat 36 to the bowl. This pivotal arrangement permits the bidet basin to be pivoted upwardly to its storage position in order to expose toilet seat 36, independently of the seat. Likewise, the toilet seat can be readily raised to its storage position when desired. In this connection it is noted that since opening 46 in toilet seat 36 is slightly larger than the dimensions of the basin 64 of the bidet, when the toilet seat 36 is moved to its raised position it will pass about a portion of the bidet basin 64, and frictionally engage the basin in a vertical or slightly past vertical position, as illustrated in Figure 5 so that it remains in its raised position. To aid in this nesting of the seat on the bidet basin the inner edge 46' of opening 46 is tapered to be generally complementary to the slope of the bidet basin at the raised contact point. In addition, the extensions 54 on seat 36 are dimensioned to frictionally engage the sides of bidet basin 64 in the raised position of the seat to aid in holding the seat in that raised position.

In order to maintain bidet 60 in its raised position a spring 96 is provided operatively connected at its opposite ends 98, 100 to bidet 60 and bowl 12. As illustrated in Figure 5a the connection 100 for spring 96 is located at an elevation above the level of pivot pin 94 for the bidet basin, so that the spring normally biases the bidet basin to its raised position. However, in the down position the weight of bidet 60 is sufficient to overcome the bias of spring 96 and the bidet 60 remains in its down position. However, upon movement of bidet in an upward direction, spring 96 urges the bidet to its full upright position and, once that position is reached, holds the bidet at that position. In order to facilitate raising the bidet to its up position the front edge thereof is provided with a recess 102 formed therein to form a finger grip enabling the user to easily raise the bidet from its down to its up position.

In order to facilitate cleaning of bowl 12, and to prevent the accumulation of water on step ledges 84, 86 as a result of upward movement of the bidet after use, these ledges are sloped, as illustrated in Figures 5 and 5a, to incline downwardly towards the water basin 16 in bowl 12. These ledges are also sloped downwardly away from abutment walls 88 towards the longitudinal center line of the bowl, as illustrated in Figure 8, so that water on these ledges will flow towards the center of the ledges. A dished area 104 is formed at the central area at the rear of rim 18 so that all water runs of

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into bowl 12.

Referring again to Figures 1, 4 and 5, water tank 22 has a bulbous front portion 110 on its front face 112. This bulbous configuration is provided in order to allow the major portion of the tank to be narrower than conventional tanks while still allowing an adequate volume within tank 22 to contain sufficient water to properly flush the bowl. Bulbous portion 110 is shaped to be accommodated within the basin 64 of the bidet when the bidet is raised to its upper position as illustrated in Figure 5. Generally the bulbous portion 110 of the tank is complementary to at least the front portion of basin 64 so that it can be readily received therein. In this position the bidet is out of the way and fully exposes the toilet seat to permit use thereof.

The bulbous portion 110 of the tank is surrounded by a relatively flat peripheral area 114 which is generally complementary to the flange of the bidet so that even with the bidet in its upright position a neat and pleasing appearance is provided for the composite facility of the present invention.

In order to supply water to the bidet basin a through passage or tunnel 120 is provided in the rear 20 of bowl 12. Hot and cold water valves 122, 124 are respectively mounted on the ledge 125 of the rear portion 20 of bowl 12 adjacent a recessed lower front portion of the tank 22. The valve 122 is connected to a water supply conduit 126 which can be connected in any convenient manner to a hot water supply, such as for example the hot water supply pipe normally located below the sink in a bathroom. The valve 124 on the other hand is connected by a conduit 128 to the cold water supply pipe 130 normally provided for supplying cold water to tank 22.

A counter flow control valve 132 of conventional construction is mounted between valves 122, 124 and receives hot and cold water therefrom according to the adjustment of valves 122, 124. The counter flow control valve 132 is connected by conduits 129, as seen in Figures 4 and 2, to the water passages 66, 68 formed in bidet 60. By operating counter flow control valve 132 the user can selectively supply water to passage 66 or passage 68. Tunnel 120 in bowl 12 facilitates mounting of the valves on the bowl and the physical connection of the valves by means of conduits, pipes or tubes.

Accordingly it is seen that a relatively simply constructed composite water closet and bidet facility is provided which has a pleasing appearance, and a unitary structure, so that the facility appears as a unitized fixture, adapted for several distinct purposes. The composite compact design is relatively simple in construction and provides an integrated whole compact image.

The structure is relatively easy to clean and maintain, and is particularly adapted for mass production applications. As mentioned, the bowl and tank are preferably formed of a ceramic material in the conventional manner, while the seat and bidet may be formed of molded pastic or the like in order to have a smooth and hard surface warm to the touch of human skin. Moreover the compact unitized image of the device of the present invention avoids the haphazard piecemeal appearance of previously proposed composite water closets and bidets where the bidet appears as an obvious afterthought and not as an integral portion of the fixture.

Although an illustrative embodiment of the present invention has been described herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to that precise embodiment, and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope of this invention as defined in the appended claims.

WHAT I CLAIM IS:-

1. A composite water closet and bidet wherein said water closet is adapted to receive said bidet and said bidet is adapted to be received by said water closet; said water closet including a bowl defining a water basin and a siphon passageway in fluid communication with said water basin, said water closet having an upper peripheral rim surrounding said water basin including a rear edge portion; toilet seat pivotally mounted on said bowl adjacent said rear edge portion and overlying said rim, said bidet comprising a bidet basin having a bidet seat portion and a bidet basin portion, said bidet seat portion normally overlying said toilet seat and being pivotally connected adjacent said rear edge portion of said rim, said bidet portion having an upper edge and being integrally connected along said upper edge to the inner peripheral edge of said bidet seat portion and extending through the opening of said seat and being received by said water basin, said toilet seat and said bidet seat portion having a generally similar configuration in plan.

2. A composite water closet and bidet as claimed in Claim 1, wherein said toilet seat and said bidet seat portion each having relatively parallel opposite side portions, said side portions having a pair of opposed inwardly extending enlarged middle portions overlying said water basin.

3. A composite water closet and bidet as claimed in Claim 1 or 2, wherein said rear edge portion of said bowl has first and second ledges formed thereon in in stepped relation to each other with said second ledge being at a higher elevation than the first

ledge and located rearwardly therefrom with respect to the water basin, said toilet seat and said bidet seat portion having rear portions respectively overlying said first and second ledges.

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4. A composite water closet and bidet as claimed in Claim 3, wherein said ledges are inclined downwardly towards said water basin and are also sloped towards their centers thereby providing a central dished area directed towards said water basin.

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5. A composite water closet and bidet as claimed in Claim 1, 2 or 3, wherein said toilet seat and said bidet seat portion have rear end portions and are independently pivotally mounted on said bowl adjacent said rear end portions along first and second pivot axes respectively, said first pivot axis for said toilet seat being located below and forwardly of the second pivot axis for the bidet seat portion with respect to the water basin whereby the seat and bidet may pivot upwardly away from the water basin freely and independently of each other.

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6. A composite water closet and bidet as claimed in any preceding claim, wherein said bidet basin portion includes a base having a drain opening formed therein; said bidet basin portion also having an upper rear edge portion adjacent said bidet seat portion and having an auxiliary overflow drain opening formed therein.

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7. A composite water closet and bidet as claimed in any preceding claim, wherein said bidet basin includes two water passages formed therein respectively supplying water to the basin at the upper edge of said basin portion adjacent said bidet seat portion and to the bottom of said bidet basin portion.

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8. A composite water closet and bidet as claimed in Claim 7, wherein water control means for said bidet basin are mounted on said rear edge portion of said bowl; said rear edge portion having a through passage formed therein for receiving water supply means connected to said water control means.

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9. A composite water closet and bidet as claimed in any preceding claim, wherein said water closet includes a water tank in fluid communication with said water basin and positioned on top of said rear edge portion; said water tank having a front surface generally parallel to said bidet seat portion when the bidet basin is pivoted upwardly towards said tank to provide a corresponding storage plane for the raised bidet basin to rest against, said front surface also having a peripheral configuration generally complementary to the peripheral configuration of said bidet seat portion to provide a compact storage configuration for said bidet basin.

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10. A composite water closet and bidet as claimed in Claim 9, wherein said water

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tank has a recessed lower front portion to provide space for water control means mounted on said rear edge portion of said rim.

11. A composite water closet and bidet as claimed in any preceding claim, wherein said siphon passageway has an inner wall over which water flows from said water basin, said siphon passageway also having an inverted U-shaped portion formed over said wall to lift the liquid content of said water basin over said wall during siphon action, the highest elevation of said inverted U-shaped portion being at a predetermined distance below said bidet basin to prevent the water level in said water basin from touching the underside of said bidet basin portion when the water level rises to its highest elevation prior to commencement of siphon action.

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12. A composite water closet and bidet as claimed in any preceding claim, including spring means for assisting lifting of said bidet basin to a raised position, for holding said bidet basin in a vertical position and for counterbalancing the weight of said bidet basin when the same is lowered into its horizontal position.

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13. A composite water closet and bidet as claimed in any preceding claim, wherein said bidet seat portion is connected to said rear edge portion of said water closet along a pivot axis rearwardly spaced from the pivot axis of said toilet seat; said toilet seat and said bidet basin portion both having front portions shaped to allow the underside of the front portion of said bidet basin portion and the inner edge of said front portion of said toilet seat to slide by each other along parallel surfaces of contact in order to prevent jamming of said front portions when both bidet basin and toilet seat are lifted simultaneously.

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14. A composite water closet and bidet characterised in that it comprises a bowl defining a water basin, said bowl having an upper peripheral rim and a rear edge portion, a toilet seat pivotally mounted on said bowl adjacent said rear edge portion thereof and overlying said rim, said toilet seat having an opening therein and providing a seating surface on the bowl; a bidet basin pivotally mounted on said bowl adjacent said rear edge portion above said seat, said basin having a peripheral seating flange overlying the seating surface of said toilet seat and having a basin portion extending through the opening of said seat into said bowl; said bidet including water supply passages formed therein for supplying water to the bidet basin; said rear edge portion having a through passage formed therein for positioning of water control means, and means in said through passage for supplying water to said water control means.

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15. A composite water closet and bidet
constructed, arranged and adapted to oper-
ate substantially as hereinbefore described
with reference to the accompanying draw-
ings.

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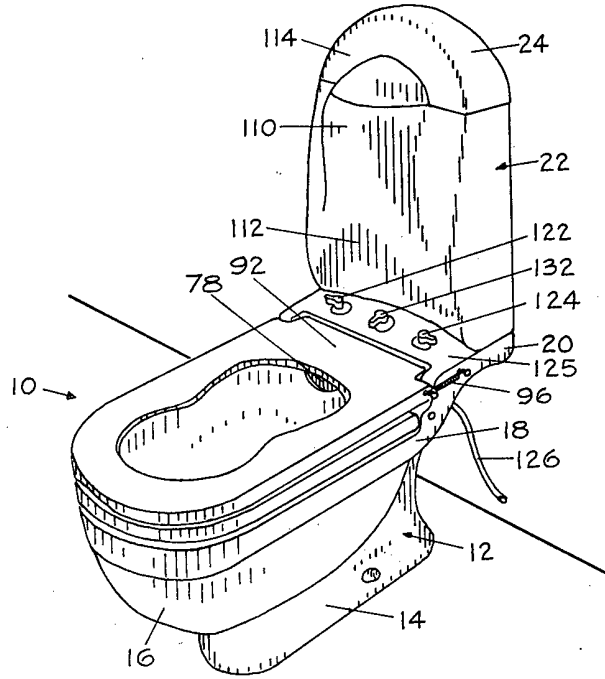


FIG. 1

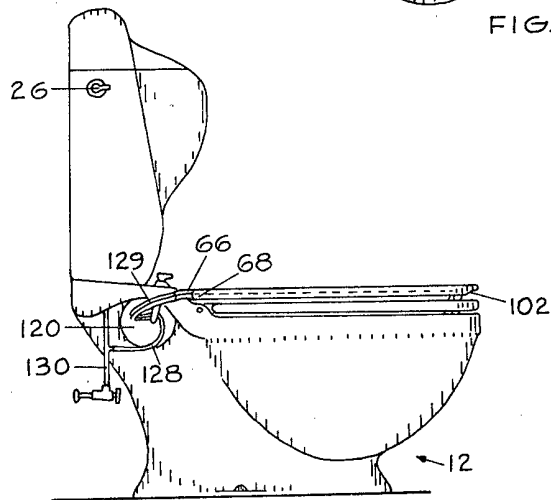


FIG. 2

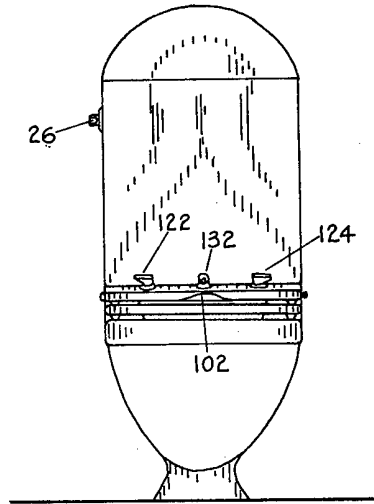


FIG. 3

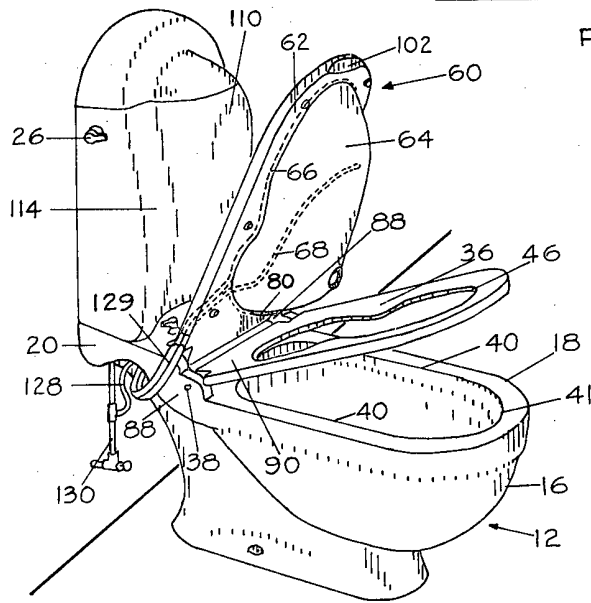


FIG. 4

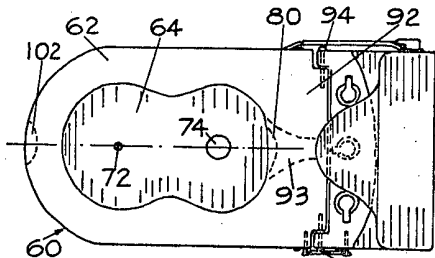


FIG. 6

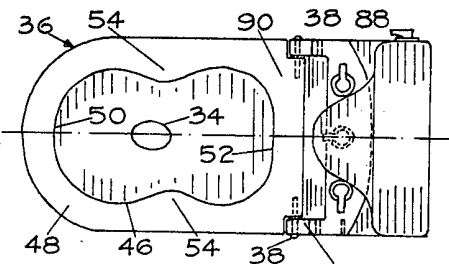


FIG. 7

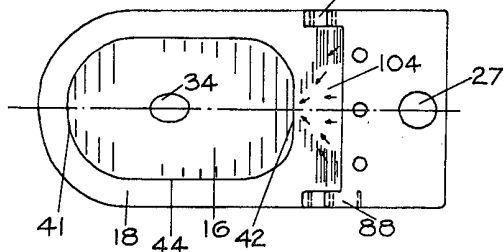


FIG. 8

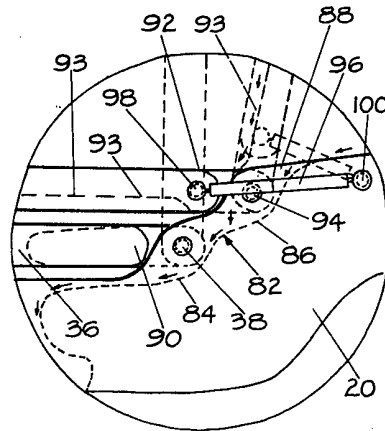


FIG. 5a

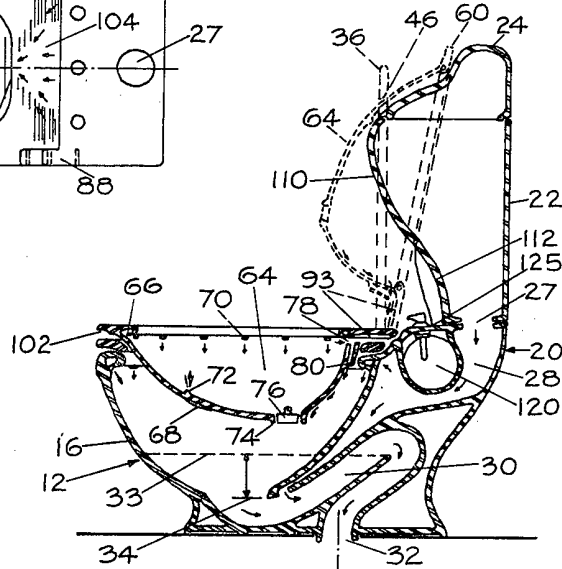


FIG. 5