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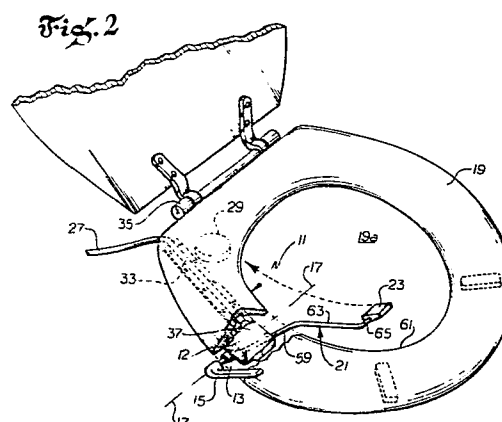
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(54) **Hygiene apparatus for toilets.**

(57) The apparatus is adapted to fit on the lower surface of conventional toilet seats, and comprises a base element (12), a support element (13), including handle (15), rotatably secured to the base element (12), an elongated fluid carrying arm (21) extending from the support (13), and a sprayhead (23). By rotating the handle (15), the sprayhead (23) moves through a relatively shallow arc from a retracted position adjacent the lower surface of the seat (19) at the rear thereof through an operative path beneath the opening (19a) in the seat (19). The axis of rotation of the support element (12) and the configuration of the fluid-carrying arm (21) are such that the focal point of the arc of the sprayhead (23) is several inches above the plane of the seat (19).



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"HYGIENE APPARATUS FOR TOILETS"

This invention relates generally to the art of toilets or water closets, and more particularly concerns a hygiene apparatus which is adapted for attachment to a toilet seat or bowl.

5 The invention is to be used for personal hygiene, particularly for cleansing of the rectal and genital areas of the body. It can be used, for instance, immediately following use of the toilet, without further undressing.

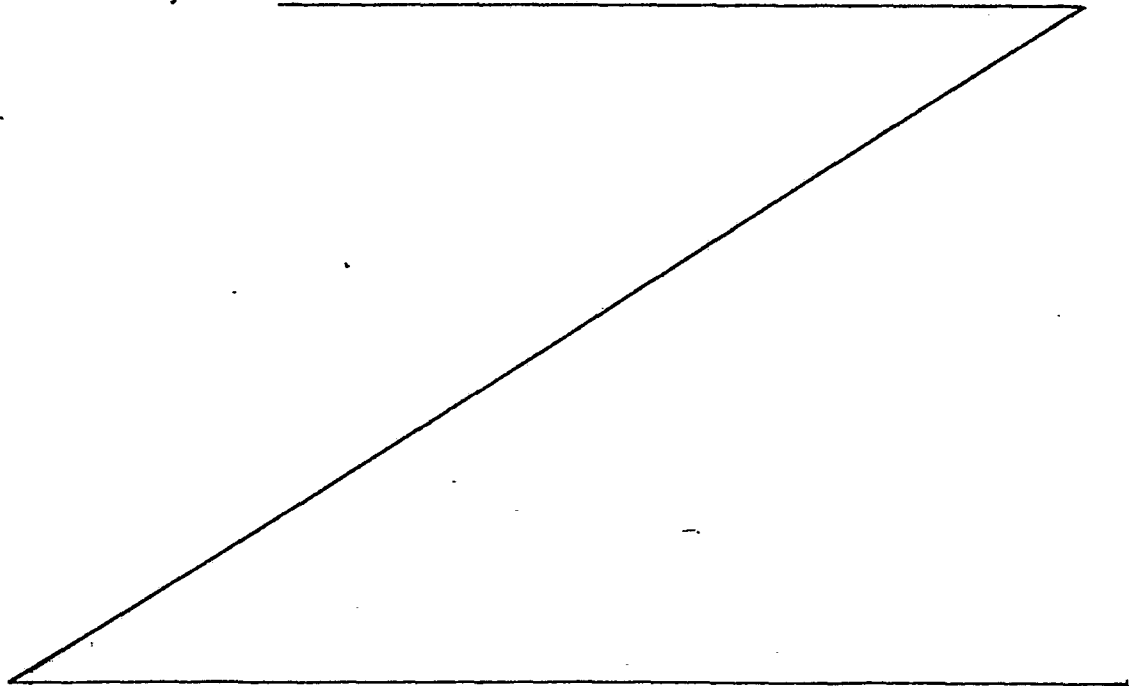
10 Private hygiene bathroom fixtures, referred to as bidets, are well known and rather extensively used in certain parts of the world, although they are generally regarded as being primarily for feminine personal hygiene. Although the advantages of the bidet are becoming increasingly well
15 recognized in the United States, it is highly

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impractical to install a bidet in existing bath-room facilities, particularly in private residences, because of the space required and the need for an additional drain.

- 5 Attachments for conventional toilets are known which attempt to provide the cleansing capability of a bidet. Such devices theoretically would overcome the problems of space and drain capability noted above. At least one such
- 10 device is presently on the market..

However, these devices, because they must operate in the physical context of a conventional toilet, have _____



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been found to have several practical disadvantages. A severe disadvantage is the poor cleansing effect of such devices due to poor or uneven coverage of the target area, i.e. the rectal and genital areas of the body.

5 Another disadvantage of such devices is that they frequently splash water onto the floor or the clothes of the user. These two disadvantages are due primarily to the design parameters imposed on such devices, i.e. that they fit within a conventional toilet and that they be out of the way and
10 preferably out of sight when not in use.

A third disadvantage with such devices is their lack of effective warm-up capability. Most devices have used a pivoting sprayhead which may be moved so that the water can be directed down into the bowl until it is sufficiently
15 warm to be used. Such an arrangement, however, complicates the mechanical aspects of the device and adds to the expense.

Accordingly, it is an object of the present invention to provide a hygiene apparatus for toilets which overcomes one or more of the disadvantages of the prior art specified
20 above.

It is another object of the present invention to provide such an apparatus which is adapted for attachment to a conventional toilet.

It is a further object of the present invention to
25 provide such an apparatus which may be moved to a retracted position when not in use, where it is substantially out of sight.

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It is an additional object of the present invention to provide such an apparatus which provides good cleansing of the entire target area.

It is yet another object of the present invention to
5 provide such an apparatus which does not splash the cleansing fluid, e.g. water, either on the floor or on the clothes of the user.

It is a still further object of the present invention to provide such an apparatus which permits convenient dis-
10 charge of fluid into the toilet bowl.

It is yet another object of the present invention to provide such an apparatus which is mechanically simple and easy to clean.

Summary of the Invention

15 Accordingly, the present invention is a hygiene apparatus adapted for use with a conventional toilet, which includes a toilet bowl and a toilet seat. The apparatus includes a support means which is positioned in the general area of the rim of the toilet bowl. The
20 support means includes a handle and is movable between first and second positions. Means are provided for supplying a washing fluid, such as water, to the support means. Elongated fluid carrying arm means, a sprayhead means and a base means complete the apparatus. The arm
25 means has one end thereof connected to the support means and

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is in fluid connection therewith. At the other end of the arm means is attached the sprayhead means. The base means is secured to the underside of the toilet seat, and the support means is rotatably mounted on the base means. The support means is so aligned relative to the base means that the support means is rotatable about a support axis which is at an angle which is approximately in the range of 30°-55° relative to the horizontal plane of the toilet seat. This arrangement results in the sprayhead means following a path of movement between a first position, which is beneath the rear of the toilet seat, and a second position, which is substantially intermediate of the side-to-side dimension of the opening of the toilet seat and near the front end thereof. The sprayhead means in operation moves in a relatively shallow arc beneath the opening of the toilet seat clearing both the fluid in the toilet bowl and the user seated on the toilet seat, the focus of the arc traveled by the sprayhead means being a point which is located at least several inches above the plane of the toilet seat.

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Description of the Drawings

A more thorough understanding of the invention may be obtained by a study of the following detailed description taken in connection with the accompanying drawings in which:

Figure 1 is an environmental view of the apparatus of the present invention.

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Figure 2 is an isometric view of the apparatus of Figure 1.

Figure 3 is a side elevational view of the apparatus of Figure 1.

5 Figure 4 is a bottom plan view of the apparatus of Figure 1.

Figure 5 is a top plan view of the sprayhead portion of the apparatus of Figure 1.

10 Figure 6 is a cross-section view of the deflector portion of the apparatus of Figure 1.

Description of the Preferred Embodiment

Referring now to Figures 1-4, and 7-8, the present invention is shown in an environment of a conventional toilet. Briefly, the apparatus, which is shown generally at 11, includes a base 12, and a support element 13, a part of which is shaped into an elongated bar-like handle 15. The support element 13 is rotatable about an axis 17, which is at a prescribed angle relative to the plane of the toilet seat 19 to which the apparatus 11 is attached.

20 An elongated fluid-carrying arm 21 extends outward from support element 13, and terminates in a sprayhead 23. Water is supplied to the apparatus through a hot and cold water mixer 25 and a tube 27, which connects the mixer 25 with the support 13 through base 12. A portion of support

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element 13 is hollow, so that there is a direct fluid connection between mixer 25 and the sprayhead 23.

The axis of rotation 17 is at such an angle relative to the plane of the toilet seat and the elongated arm 21 is so configured that the sprayhead 23 moves in a relatively shallow arc from a retracted position, in which it is nestled adjacent deflector 29, which is secured to the underside of the toilet seat 19 towards the rear thereof, through an operative path which extends beneath the opening 19a in the toilet seat, to a point which is near the front end of the opening in the toilet seat, and substantially intermediate of the side-to-side dimension of the opening.

Along its operative path, the sprayhead 23 moves from a point at the rear of the seat to a point near the front. The sprayhead is approximately 3 inches below the plane of the lower surface of the toilet seat when it is in approximately the middle of the opening 19a. The focal point of the arc of the sprayhead is several inches above the toilet seat, so that thorough coverage of the target area over the plane of the opening 19a results as the sprayhead moves through its path of travel. Such an arrangement, which will be described in more detail hereinafter, solves many of the problems of the prior art noted above.

Referring now to Figures 1-4 and 7-8 in detail concerning the operation of the apparatus, a washing fluid, usually water, is supplied to the apparatus from available hot/cold water plumbing lines (not shown). This water is

delivered to the mixer 25, in which the hot and cold water is mixed in a prescribed ratio, which is set by the user through mixer handle 31. The mixer is supported on a platform-like plate which is connected to the toilet bowl through the toilet seat connections.

The output of mixer 25 is channeled through a tube 27, which for appearance and protection purposes can be covered by a metal flex hose (not shown), to the main part of the apparatus. The covered tube extends to the outer edge of the lower surface of the seat 19, where it enters an elongated channel 33 in the lower surface of the seat. The channel 33 is deep enough to accommodate the covered tube, and extends from a point immediately adjacent one of the pivot points 35 of the seat 19 to approximately the longitudinal midpoint 37 of the seat along one side thereof. A keeper 39 maintains the tube 27 and the flex-hose in position where it enters the channel 33. A cover plate 41 covers the channel and the tube therein along the length of the channel 33.

The elongated channel 33 terminates in a cavity in which is positioned base 12. Base 12 in the embodiment shown is about 2 inches square by approximately 1/2 inch deep. Base 12 extends downwardly from the lower surface of the seat approximately 1/4 inch. Three sides of base 12 are defined by flat walls 45, while the top of base 12 comprises plate 47, the major part of which is parallel with the plane of the lower surface of the toilet seat,

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i.e. it is horizontal when the seat is down. The other part of plate 47 is angled portion 49, which comprises the remaining wall of base 12. Angled portion 49, in the particular embodiment shown, extends at an angle of

5 approximately 45° relative to the plane of the lower surface of the toilet seat, and is substantially parallel with the longitudinal dimension of the seat. The angle of portion 49 determines the angle of the axis of rotation 17 of support element 13. The angle of rotation in the

10 embodiment is approximately 45°; however, it can be approximately in the range of 30°-55° for proper operation of the device.

The support element 13 extends outwardly from the angled portion 49 of plate 47. One end of support element 13

15 extends slightly into the interior of the base 12, where it rotatably mates with the end of tube 27. The support element 13 has a hollow portion which extends to the connection with tube 27, so that there is a fluid connection between the tube and support element 13.

20 Support element 13 is somewhat irregular in configuration, having one portion which extends through an opening in angled portion 49 of base 12 to rotatably receive the end of tube 27, as well as other portions, from which handle 15 and elongated arm 21 extend. Support element 13

25 is rotatably secured or supported on angled portion 49 such that it rotates about the axis of rotation 17, which is substantially perpendicular to the plane of angled portion

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49, which in turn intersects the lower surface of the toilet seat at an angle of about 45° . Thus, axis 17, in the embodiment shown, is at an angle of approximately 45° relative to the plane of the lower surface of the seat as well. This angle, however, as mentioned above, may be varied somewhat, although it should be approximately in the range of 30° - 55° . Axis 17 also is generally in a lateral plane of the seat.

The handle 15 extends from portion 54 of support 13, and is an elongated flat element which in the embodiment shown is approximately 3 inches long, by $3/4$ inch wide, by $3/8$ inch thick. It is beveled and rounded at its exposed edges and corners to facilitate a comfortable fit with the hand of the user.

The elongated fluid carrying arm 21 is hollow, and is connected at one end 57 to portion 55 of support 13, which in turn is connected with the hollow region of support 13 so that there is a fluid connection from tube 27 through support 13 to the elongated arm 21.

The elongated arm 21 has a particular configuration which assists in achieving the objects of the present invention. It comprises, in the embodiment shown, three sections, each of which is substantially straight, but when combined as shown and described, results in a complex shape. Although the arm 21 is secured to support element 13 at portion 55, its theoretical pivot point is the point where it would intersect axis 17, if continued to the axis.

The configuration and relative position of each portion of arm 21 will be described when the arm is in its retracted position. A first portion 59 of the arm extends outwardly from support 13 in approximately the same plane as the lower surface of the seat 19. It extends somewhat toward the rear of the seat, approximately 15-20° from the lateral axis and just about to the boundary edge 61 of opening 19a. As the sprayhead 23 is moved through its operative path, portion 59 moves through a very shallow arc, substantially parallel to the plane of seat 19, in the space between the seat and the top of the bowl. The portion 59 is so configured generally and is connected to support element 13 at such an angle that its entire range of movement is between the seat and the bowl. Portion 59 is thus generally hidden from view beneath seat 19.

A second portion 63 of arm 21 extends from the first portion and is approximately 3 1/2 inches long in the embodiment shown. It is angled downwardly at approximately 30° from the plane of the seat 19 and rearwardly at approximately 45° when the first portion is parallel with the lateral axis of the seat. This portion of the arm 21, which extends approximately from the seat edge 61 into the opening 19a, is thus secured to the first portion 59 at such an angle to provide the desired arcuate path of the sprayhead 23. When the apparatus is in its fully retracted position, the second portion 63 is hidden underneath the seat but is relatively close to the edge 61 of

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the opening 19a. As the sprayhead moves through its operative path, portion 63 moves below the opening 19a, with the far end of portion 63, e.g. the end nearest sprayhead 23, describing a shallow arc beneath the opening 19a.

The third portion 65 of arm 21 is relatively short, approximately 1 inch in the embodiment shown, and terminates at the sprayhead 23. The third portion 65 is oriented relative to the second portion such that it extends in the same direction as the first portion, and such that the sprayhead 23 is nestled in deflector 29 when the sprayhead is in its retracted position.

The sprayhead 23 in the embodiment shown (Figure 5) is rectangular, approximately 1 1/2 inches long, by 3/4 inch wide, by 1/2 inch deep. In one surface thereof is located a plurality of small holes 69 through which is forced the fluid from mixer 25 in the form of a spray.

The relationship of arm 21 to sprayhead 23 and the handle 15 are such that when handle 15 is in a substantially horizontal position adjacent the outer edge of seat 19, sprayhead 23 is near the lower surface of the seat, just to one side of the very rear thereof, nestled in deflector 29. In this position, sprayhead 23 is at a slight angle to the plane of the lower surface of the seat.

The deflector of the present invention in the embodiment shown is cup-like in configuration, approximately 2 inches in diameter and 1/2 inch high. It includes a base

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70 (Figure 6) which is secured to the lower surface of the seat 19, and a relatively thin boundary wall 71 which is flat on its exterior surface, but curved on its interior surface, so that there are no angles or sharp corners in the interior of deflector 29.

The deflector 29 is positioned so that it is slightly offset from the rearmost central portion of the seat. When the sprayhead 23 is in its fully retracted position, it extends partly into the cavity defined by the deflector. When fluid enters the apparatus when sprayhead 23 is in its retracted position, the fluid is deflected down into the toilet bowl. This is particularly advantageous, as the cooler water present in the apparatus upon initiation of its operation is conveniently directed into the bowl without any splashing. In another embodiment, a heater may be provided in the mixer 25 to insure even water temperature for the apparatus.

After the water is at the desired temperature, the handle 15 is rotated by the user so that sprayhead 23 is in the desired position relative to the user. Due to the physical arrangement of the various parts of the apparatus, sprayhead 23 moves through an arc which extends from the rear of the opening 19a, where it is approximately 1 1/2 inches below the plane of the lower surface of the toilet seat, to a point near the front of the opening, where again it is about 1 1/2 inches below the plane of the seat. At the midpoint of its arc, the sprayhead is approximately 2 1/2 to 3 inches below the seat plane.

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With such an arrangement, sprayhead 23 does not come in contact with the user but still clears the water in the bowl. The fluid in the apparatus is under sufficient pressure to create a spray which is directed toward the focal point of the arc, which is usually some distance, i.e. 3-4 inches, above the plane of the toilet seat. As sprayhead 23 moves through its arc, the spray will be always directed to that focal point. The target area for the spray, however, will generally be on a plane which is between the focal point of the arc and sprayhead 23. A relatively wide coverage area is thus possible for the target area over the path of sprayhead 23.

Hence, a hygiene apparatus useful as an attachment for conventional toilets has been described. The apparatus is convenient and efficient, yet is unobtrusive when in its fully retracted position. The spray from the apparatus provides a relatively wide coverage of the target area, but does not result in splashing of the clothes of the user. It furthermore includes means to insure that the fluid provided for cleansing is at the desired temperature, and is arranged so that no part of the apparatus will come in contact with either the user or the water in the bowl.

Although an exemplary embodiment of the invention has been disclosed herein for purposes of illustration, it should be understood that various changes, modifications and substitutions may be incorporated in such embodiment without departing from the spirit of the invention as defined by the claims which follow.

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CLAIMS

1. A hygiene apparatus adapted for use with a conventional toilet which includes a toilet bowl and toilet seat, comprising:

5 support means, which includes handle means, positioned in the general area of the rim of the toilet bowl, and moveable between first and second positions;

 means supplying a washing fluid, such as water, to said support means;

10 elongated fluid-carrying arm means having one end thereof connected to said support means and in fluid connection therewith;

 sprayhead means secured to the other end of said fluid-carrying arm means; and

15 base means positioned on the under side of the toilet seat, said support means being mounted on said base means such that said support means is rotatable about a support axis which is at an angle approximately in the range of 30° to 55° relative to the horizontal
20 plane of the toilet seat, such that said sprayhead means follows a path between a first position, which is beneath the rear of the toilet seat, and a second position, which is substantially intermediate of the side-to-side dimension of the opening of the toilet seat and near the
25 front end thereof, said sprayhead means in operation moving in a relatively shallow arc beneath the opening of the toilet

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seat, clearing both the fluid in the toilet bowl and the user seated on the toilet seat, the focus of the arc traveled by said sprayhead means being a point which is located at least several inches above the plane of the
5 toilet seat.

2. An apparatus of Claim 1, wherein said base means is positioned approximately intermediate of the front-to-rear dimension of the toilet seat.

3. An apparatus of Claim 1, wherein said fluid-
10 carrying arm means and said sprayhead means are not in view when said support means is in said first position.

4. An apparatus of Claim 2, including means for receiving the fluid from an external source thereof, wherein said toilet seat includes a channel therein which begins
15 near the rear thereof and terminates at said base means, and wherein a portion of said receiving means is positioned in said channel.

5. An apparatus of Claim 3, including deflector means positioned on the lower surface of the toilet seat near the
20 rear thereof, said deflector means being cuplike in con-

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figuration, including a base surface and a surrounding wall which is curved into the base surface, said sprayhead means substantially nestling in said deflector means when said sprayhead means is in a retracted position such that
5 fluid from the sprayhead means in its retracted position is deflected by said deflector means down into the toilet bowl.

6. An apparatus of Claim 1, wherein when said sprayhead means is at its lowermost position, a first portion
10 of said fluid-carrying arm means, which extends from said support means to approximately the inner edge of the toilet seat, is at a relatively small angle relative to the horizontal plane of the toilet seat, while the remainder of said fluid-carrying arm means, which extends
15 into the toilet bowl, is at a substantial angle relative to the horizontal plane of the toilet seat.

7. An apparatus of Claim 1, wherein said sprayhead means is positioned at such an angle relative to the fluid-carrying arm means on which it is mounted that the path
20 of the spray from the sprayhead means follows substantially the longitudinal axis of the toilet seat as said sprayhead means moves between its first and second positions.

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Fig. 1

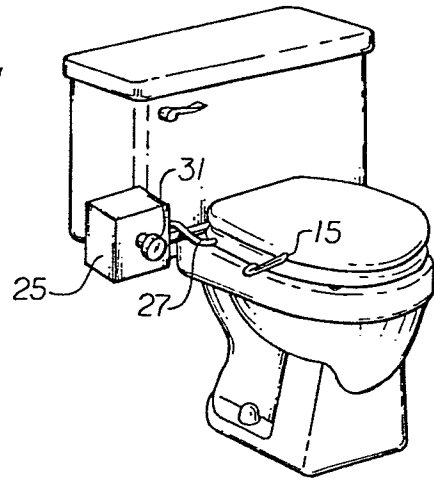


Fig. 2

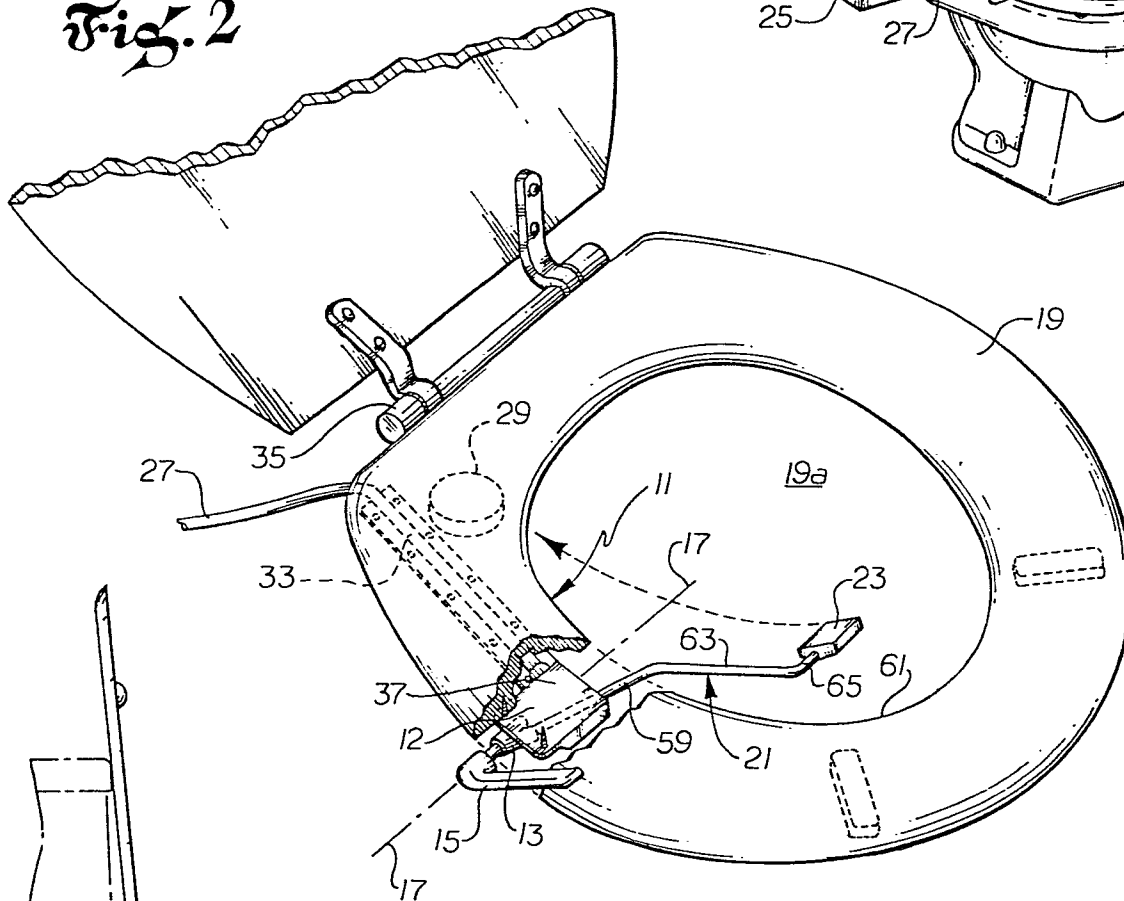


Fig. 3

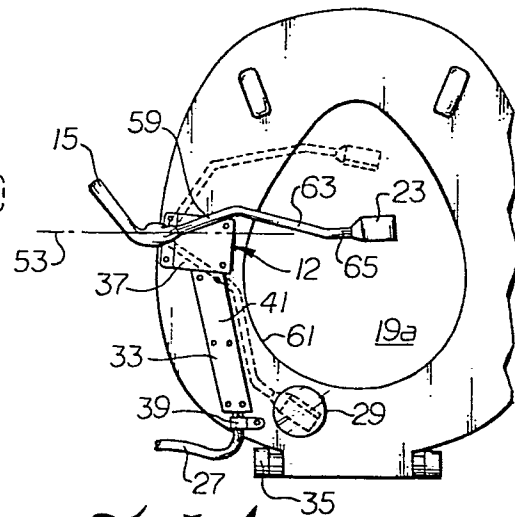
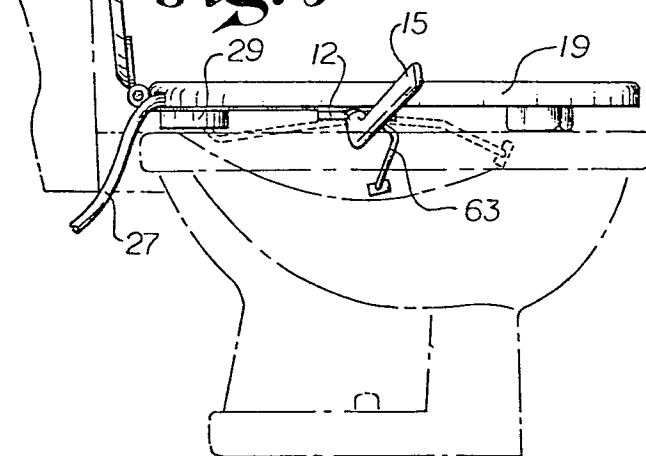
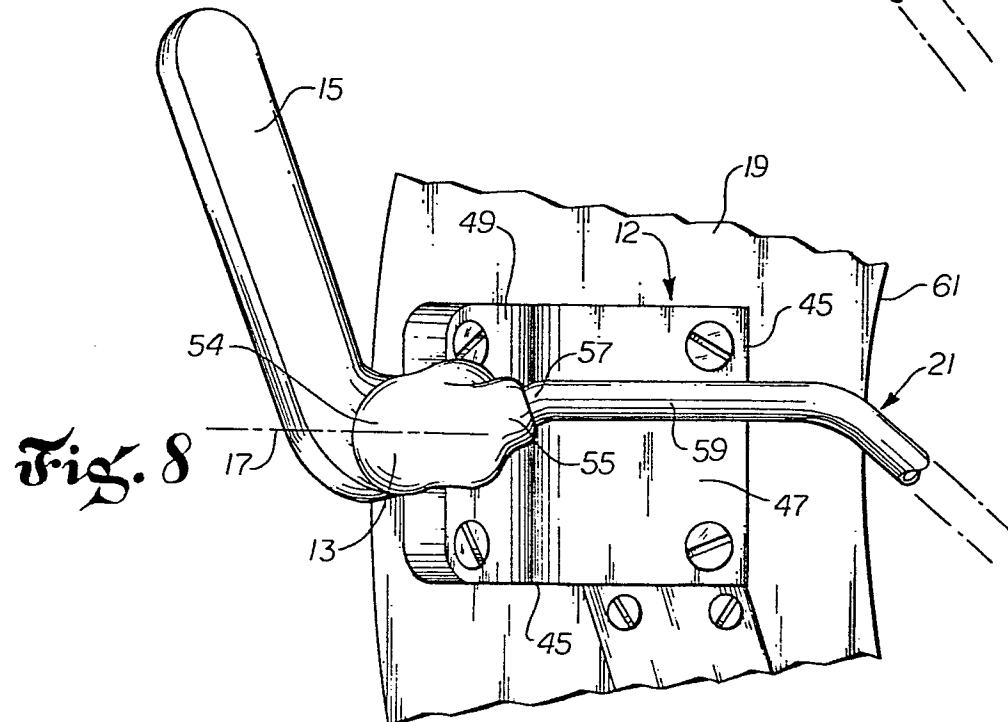
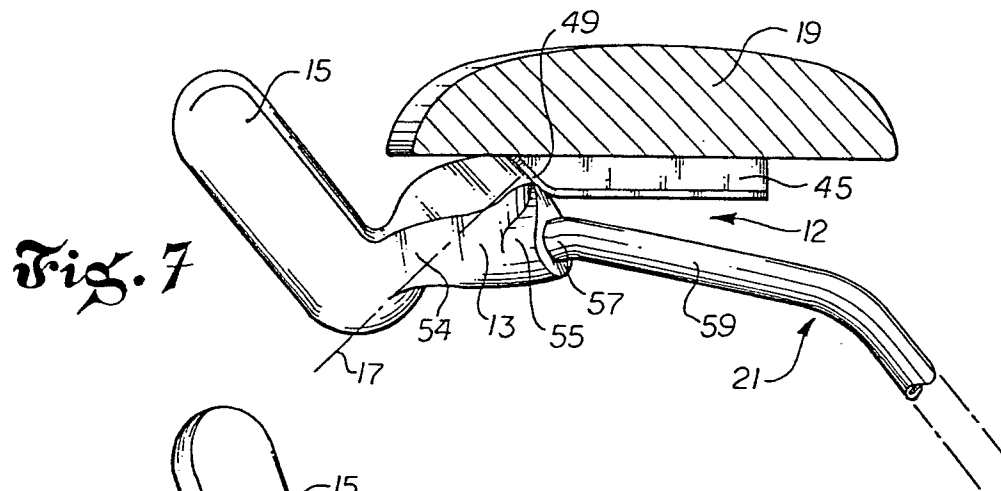
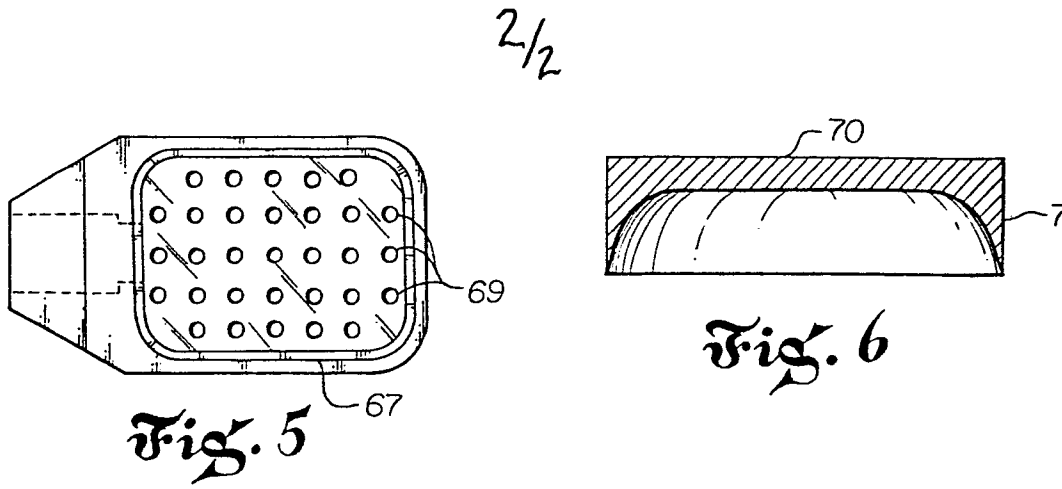


Fig. 4





European Patent
Office

EUROPEAN SEARCH REPORT

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Application number

EP 80 30 0520.6

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	DE - U - 6 924 526 (A. ALOBAIDI) * fig. 1, 2 * --- DE - U - 1 961 098 (W. TERZENBACH) * fig. 1 to 4 * --- US - A - 4 069 519 (ALEXANDER) * fig. 1 to 10 * --- US - A - 3 605 124 (H.G. MARCARD et al.) * fig. 1 * --- US - A - 1 988 078 (F. GUIDETTI) * fig. 1 to 5 * --- A FR - A1 - 2 408 334 (J.R. ROUSSELIN) * fig. 1 to 3 * --- A US - A - 4 135 255 (MENENDEZ) * fig. 1 to 4 * -----	1-4 1,3,4 1,3,4 1,3,4 1,3,4 1,3,4	E 03 D 9/08 TECHNICAL FIELDS SEARCHED (Int. Cl.) A 47 K 3/00 A 47 K 7/00 E 03 D 9/00 CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons &: member of the same patent family, corresponding document
X The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Berlin		09-10-1980	PAETZEL