United States Patent [19]

Agnew et al.

[11] **3,863,276**

[45] **Feb. 4, 1975**

[54] **COMMODES**

[75] Inventors: **Kenneth Malcolm Agnew; Timothy Coward; Douglas Frazer Tomkin,** all of London, England

[73] Assignee: **National Research Development Corporation,** London, England

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[30] **Foreign Application Priority Data**

Feb. 18, 1971 Great Britain 4939/71

[52] **U.S. Cl.** **4/237,** 4/134, 4/135

[51] **Int. Cl.**.... **G03d 9/00,** G03d 11/00, A47k 11/02

[58] **Field of Search** ..... 4/234, 115, 235, 254, 111, 4/116, 134, 146, 237, 146, 111, 13, 112, 187 A

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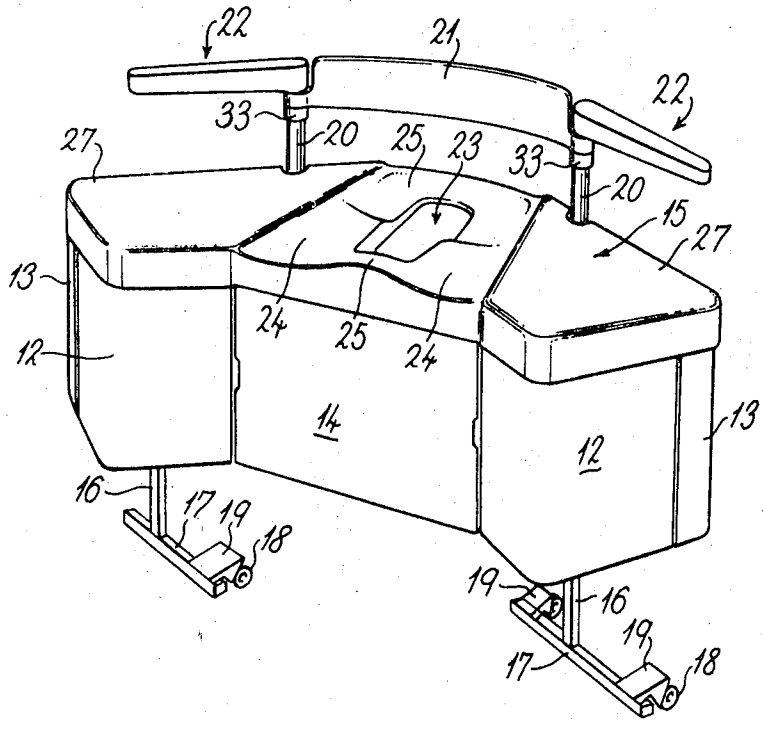
Primary Examiner—Harvey C. Hornsby
Assistant Examiner—Robert Pous
Attorney, Agent, or Firm—Cushman, Darby & Cushman

[57] **ABSTRACT**

A seat for sanitary equipment such as water closets and commodes, has an elongated aperture extending between the front and rear, two non-planar profiled areas bordering the sides of the aperture towards its front, and a relieved area bordering the aperture behind the two areas. The profiled areas are trough formations to receive and support the thighs, and the relieved area is U-shaped and dished around the aperture to clear the buttocks. In a commode, such a seat conveniently forms part of a platform including at least one supplementary seating area extending laterally from the seat, there preferably being two such areas to form wings in an overall configuration which is curved or angled in plan view. Other features associated with such a commode comprise a user support arrangement upstanding from the platform rear and including a back rest and hand rail/arm rests, and also legs with rollers which can be rendered effective or not, the legs and support arrangement being adjustable in height and, in the latter case, angular disposition.

10 Claims, 11 Drawing Figures



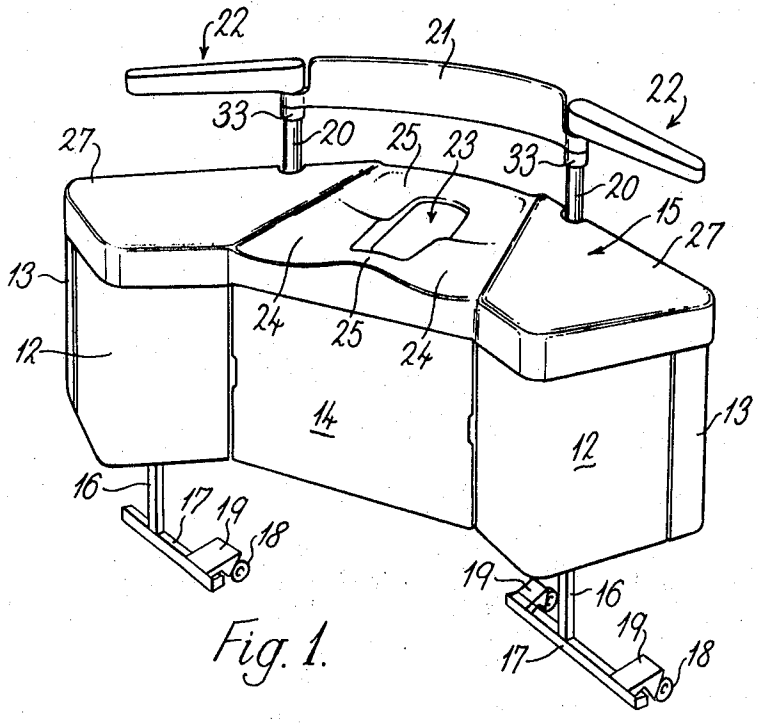

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Fig. 1.

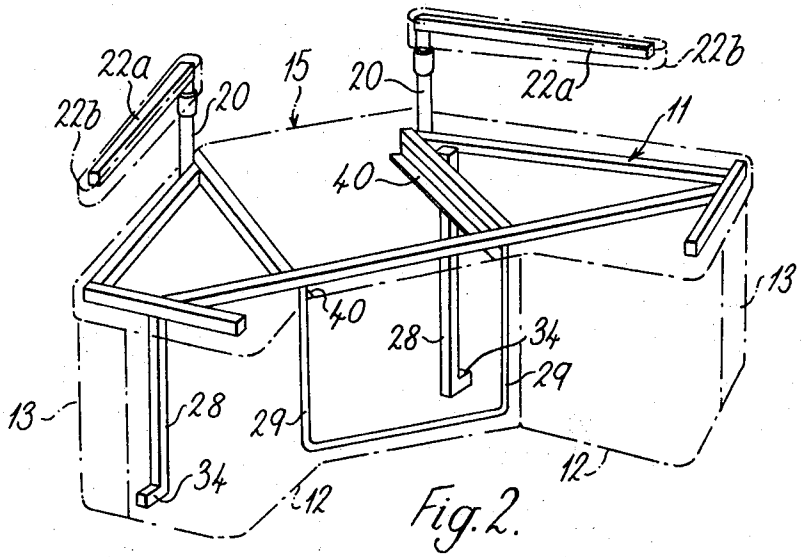
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Fig. 2.

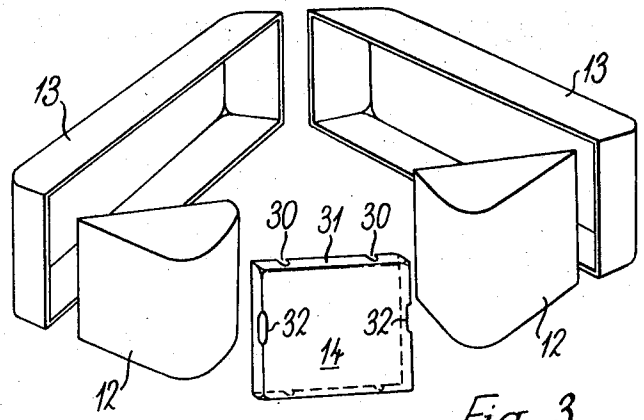


Fig. 3.

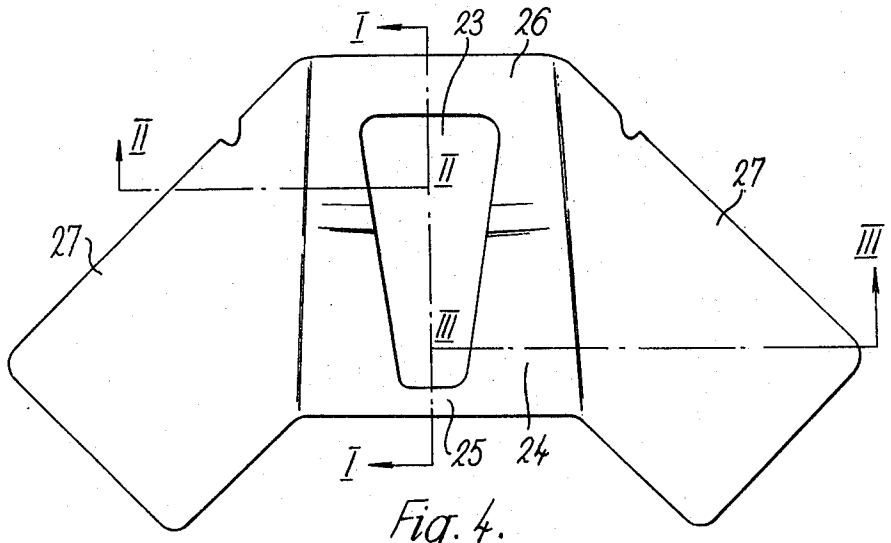


Fig. 4.

Fig. 5a

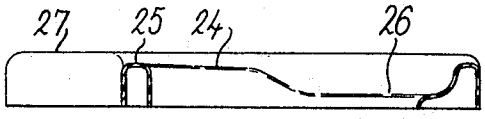
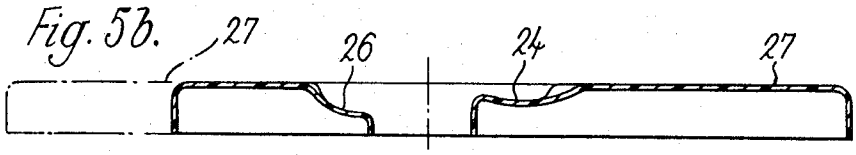


Fig. 5b.



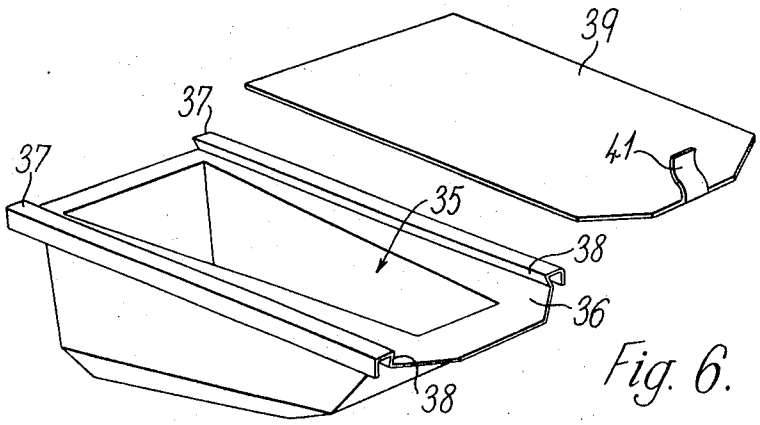


Fig. 6.

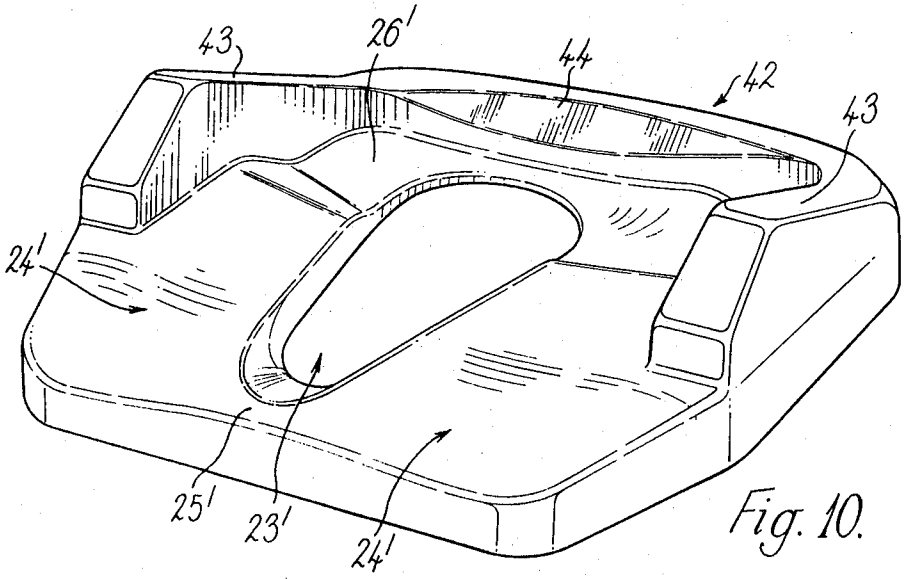


Fig. 10.

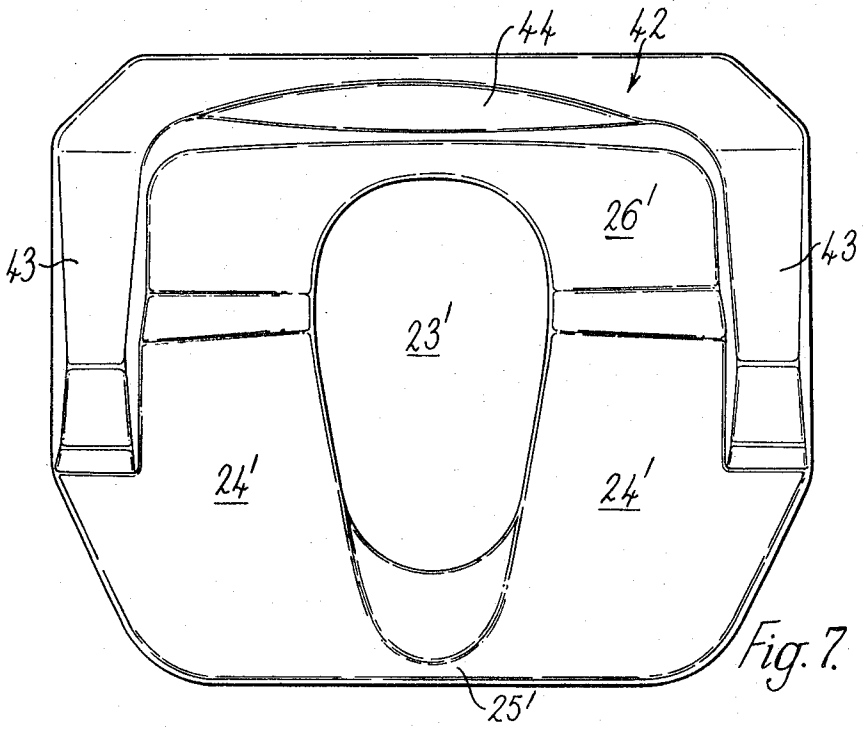


Fig. 7.

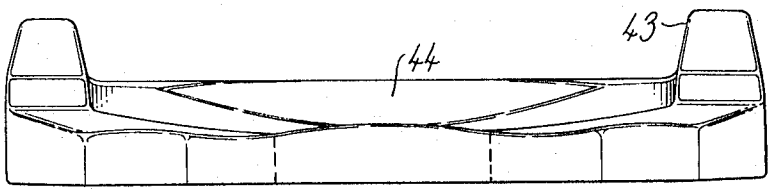
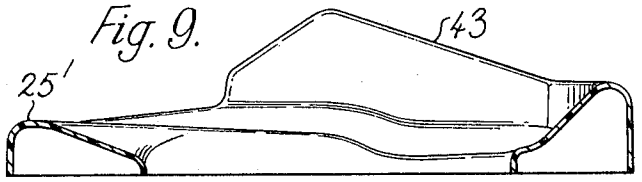


Fig. 8.

Fig. 9.



COMMODES

This invention concerns sanitary equipment such as water closets, commodes, and the like.

In one aspect the invention provides a seat for such sanitary equipment, the seat having an elongated aperture extending between the front and rear thereof, two non-planar profiled areas adjacent respectively opposite sides of the front portion of said aperture, and at least one further area bordering said aperture at the rear of said two areas and being relieved relative to said areas.

The object of the profiled and relieved areas in the seat is to induce and facilitate use whereby a user's weight is supported more predominantly or substantially through his thighs compared to a conventional seat which normally involves significant support through the buttocks. In this connection it is preferred that the two profiled areas are each smoothly dished to concave curvature in the lateral direction so as to provide thigh-receiving trough formations. These formations will normally be substantially rectilinear in their respective longitudinal directions, but they may also be generally convex in these directions.

The relieved area is preferably generally U-shaped, greater relieved area bounding the rear portion of the seat aperture, which area is smoothly dished to an overall concave curvature in both the lateral and longitudinal directions to provide clearance for the bottocks.

While the invention as so far discussed is applicable to various forms of sanitary equipment, it has arisen as part of a development to provide an improved commode for use by infirm and partially incapacitated persons.

In another aspect resulting from this development the present invention provides a commode comprising a platform including a seat of the above form and a supplementary seating area extending laterally from said seat, and a supporting structure for said platform.

In a preferred form of such a commode said platform is of substantially symmetrical angled or curved configuration in plan view, with the elongated aperture of said seat extending along the axis of symmetry thereof, and two supplementary seating areas extending laterally therefrom as wings.

The supplementary seating area or wings of such a commode will be seen to allow a user to seat or support himself, disrobe as far as is necessary, and then slide or otherwide move to seat himself on the profiled and relieved areas, with a reverse procedure involving either wing following thereafter.

The supporting function in question can be enhanced by the provision of a user support arrangement upstanding from the rear of the platform. Such a support arrangement preferably follows the angled or curved configuration of the platform to afford a respective hand rail or equivalent facility associated with each wing, and also a back rest associated with the aperture. Also, it will be appreciated that the overall angled or curved arrangement of platform and rear support can be used alongside a chair or bed to form a partial or complete support enclosure within which a user can move. From this point of view, the angling or curving of the platform preferably defines an included angle of the order of 90°.

The user-supporting facilities of the commode can be further enhanced by the use of hand rails which are pivotally mounted for movement between positions in which they extend along the rear of the platform and positions in which they extend alongside, or converge over, the aperture. In the latter positions, the rails can serve as arm supports for a seated user of the commode.

For this last purpose, it is desirable that the height of the rails be adjustable in height relative to the platform and this may be effected in association with the back rest. It is similarly desirable that the height of the platform be adjustable relative to the ground to suit different users.

Also, it is desirable in some circumstances, such as in a hospital, that the commode be provided with roller elements to afford mobility and, in addition, a facility for immobilising the same during use so that the commode can afford a firm and stable support. This facility can be conveniently associated with platform height adjustment by way of longitudinally adjustable legs which only allow the roller elements to contact the ground when the feet are substantially fully retracted.

In order that the above-discussed and other aspects and features of the present invention may be clearly understood the same will now be more fully described, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 illustrates a commode according to the invention,

FIG. 2 schematically illustrates the mode of construction of the commode of FIG. 1;

FIG. 3 similarly illustrates some of the components of FIG. 2 in exploded manner;

FIG. 4 illustrates in plan view the seat platform of FIG. 1;

FIGS. (5*a*) and (*b*) schematically illustrate different sectional profiles of the platform of FIG. 4;

FIG. 6 schematically illustrates a waste receiving vessel and associated lid for use with the commode of FIG. 1; and

FIGS. 7 to 10 respectively illustrate a water closet seat according to the invention in plan, front elevation, longitudinal cross-section, and perspective views.

The illustrated commode comprises a body **10** constructed by cladding a framework **11** (FIG. 2) with body panels **12** and **13**, a door **14** and a seat platform **15**. Legs **16** extend below the body to terminate in feet **17** in the form of ground-engaging bars which carry castors **18**. The castors **18** are mounted on the feet **17** by mechanisms **19** of any suitable form to allow downward extension of the castors relative to the feet whereby the commode is mobile, and retraction of the castors so that the feet engage the ground.

A rear support arrangement including two posts **20** extends upwardly from the rear of the body and these posts serve to carry a back rest **21** therebetween and respective hand rail/arm support members **22**.

As will be seen from the drawings, the commode body and seat platform are of substantially symmetrical generally angled or curved configuration in plan view and the seat platform has an elongated aperture **23** extending along the axis of symmetry of this configuration. In effect, the aperture has a more slotted form than is the case in a conventional water closet seat, but it does diverge towards the rear. The aperture is bordered by relieved, non-planar, profiled areas which are illustrated in the sectional views of FIGS. 5*a* and *b* taken respectively on I—I and II—II/III—III of FIG. 4.

These areas comprise two lesser relieved areas **24** which border the sides of the front portion of the aperture and they are separated at the front of the aperture by a relatively elevated shield area **25.** The areas **24** are each smoothly dished to concave curvature in the lateral direction but are relatively uncurved, substantially rectilinear in the longitudinal direction to provide thigh-receiving trough formations. The areas **24** extend only partway alongside the aperture where they meet a greater relieved area **26** of generally U-shaping which borders the rear portion of the aperture. This area **26** is smoothly dished to overall concave curvature in both the lateral and longitudinal directions, as though cut from a single concave dish, to provide clearance for the buttocks.

It will be seen that the areas **24** increase in width towards the front of the aperture, partly as a result of the convergence of the aperture in this direction and also by divergence of the rectilinear outer side boundaries of these areas, to accommodate a splayed thigh attitude. Also, the outer periphery of the area **26** extends smoothly into the rectilinear boundaries of the areas **24,** there being no need to accommodate significant buttock spread when the desired thigh support is adopted. However, the aperture and the ares **26** can be extended rearwardly more than might otherwise be necessary to clear the buttocks to allow clearance for the user's hand and wrist during body cleansing activities without significantly disturbing the body support disposition of the user.

Lastly regarding the overall platform configuration: it will be seen that the wings involve planar surface areas **27.** Also a lid (not shown) can be provided to cover the profiled part of the platform and its aperture.

As noted earlier, the construction of the body **10** involves cladding a framework **11** and this is best seen from FIGS. **2** and **3.** The framework is a relatively simple structure of steel tubing or equivalent "angle" stock welded or otherwise connected to form a robust frame. While any suitable form of material can be used for this purpose, it is convenient that the main upright frame members **28** from which the legs **16** depend, and the subsidiary upright frame members **29** associated with the door **14,** be of tubular and rounded section, respectively, for purposes which will become clear hereinafter.

In any event, it will be seen that the framework is so designed that panels such as the form of front/end panels **12** and rear/end panels **13** shown in FIG. **3** can be hung, clipped or otherwise clad around the framework and thereafter capped by the platform **15.**

The door panel **14** and its mode of connection with the framework is particularly advantageous. The panel is provided along both its upper and lower peripheries with similar spring clip means which are laterally spaced by the same distance as the subsidiary upright frame members **29.** In this instance the panel is made of plastics material having some resilience and the spring clip means are in the form of notches **30** in a side wall **31** to the door panel. Such a panel is readily engaged with the members **29** and has the advantage that it can be opened from either side by pivoting around the relevant member **29.** For this last purpose the panel **14** is fitted or formed with handles or recessed hand grips **32** on both sides.

It is to be noted that the platform, door and body panels can be produced from suitable plastics materials as single mouldings by vacuum forming or equivalent techniques and, together with the above described framework, this leads to an overall construction which is simple, strong, economic, easily cleaned and acceptable in appearance.

In effect, this same mode of construction is carried through to the rear support arrangement. This involves the use of tubular material for the posts **20** which can be rigidly connected with the framework and serve as sleeves to carry the hand rail/arm support members **22** in pivotable and telescopic manner. This preferably involves the use of suitable indexing mechanisms **33** whereby the members **22** can be held in selected positions in respect of height above the platform and angle of rotation about its post.

The members **22** are formed from two parts: a rigid metal member **22***a* and a plastics cover **22***b* which is secured over member **22***a* in any convenient manner. The remaining member of the rear support arrangement is the back rest **21** which consists of a flexible strap extending between the members **22** where the latter turn to couple with the posts.

The legs **16** of the commode are metal members which are telescopically connected with the main upright frame members **28** by way of indexing mechanisms **34** to allow adjustment in the height of the body.

The commode as so far described will, of course, need to be provided with a vessel located below the aperture for receiving human waste. Such a vessel will normally be provided in a form which can be readily coupled with the commode body below the platform and separated therefrom to allow appropriate disposal and cleaning. A suitable vessel may take various forms and be attachable to the commode in various ways for this purpose, but a presently preferred vessel is shown in FIG. **6.**

The vessel of FIG. **6** is in the form of a basin **35** which is closed at its ends, it is of similar shaping in plan view to, but longer than, the associated aperture, and it has a flat rim **36** extending from its upper edge. The longitudinal outer edges of the rim **36** are parallel and extend upwardly into side members **37** which, together with the rim, provide undercut formations **38** to receive the longitudinal edges of an associated lid **39** dimensioned to register with and cover the rim **36** when the lid is fully engaged with the formations **38.** This lid engagement need only be sufficient to hold the lid in place over the basin when the vessel is removed from the commode after use.

The vessel is located in the commode below the aperture by access through the door **14** and sliding the side members **37** over flanges **40** located in the frame **11** such that the longitudinal sides of the lid and basin rim are closely adjacent the down-turned rim at the periphery of the aperture, and this serves to assist in locating and tracking the lid. The lid is made of flexible sheet material, suitably plastics material, so that it can be slid rearwardly to expose the basin below the aperture. When this action is effected the lid bends downwardly behind the vessel between the vessel and the rear of the commode body panels, the latter serving to track the lid for this purpose. In order to facilitate this action, the lid is provided with a curved tab **41** at its forward end, which will project through the aperture when the lid closes the same, and is shaped to rest against the dished platform area bordering the rear of the aperture when exposing the trough.

As with other components of the commode, the vessel is designed for production as a single moulding of plastics material together with its rim and side members.

While the present invention has been more particularly described so far with reference to commodes, it has been noted that the broader aspects of the invention concern a seat for sanitary equipment. In this connection the remaining figures illustrate application of the invention to a seat for a conventional water closet pan. As with the seat platform, the seat of FIGS. 7 to 10 is designed for production as a single moulding from plastics material. Also, it has an aperture and profiled and relieved areas bordering the same which are geometrically and functionally similar to those of the seat platform and are accordingly denoted by corresponding reference numerals with an added index.

However, it will be apparent that this seat is not similar in all respects to that of the commode. Firstly, the seat plan in question is not angled or curved to provide transfer areas, but of generally square form having chamfered corners, particularly the forward corners. Secondly, and more important, the seat is formed with a generally U-shaped raised region 42 bordering the rear periphery of the seat and extending partway along the side peripheries of the seat. The side portions 43 of this raised region are the more important since they are intended to serve as hand supports to assist a person in seating on and arising from the seat, this being particularly useful for persons, such as those who have back ailments, who would otherwise experience more difficulty in such movements. In this particular instance the hand supports rise, in the longitudinal direction, most sharply in their forward portions to a maximum height from which they fall more gradually to merge with the rear part of the raised region. This rear part serves to house any appropriate hinge means for coupling the seat to a water closet pan, but is conveniently dished, as at 44, across its forward portion to avoid discomfort to a user.

A further difference with this seat is that it may be preferred that the trough areas 24' be generally convex in their respective longitudinal directions to better suit users of different heights in the absence of height adjustment as in the earlier described commode.

Another difference is that the shield area 25' is sloped towards the aperture so that any soiling is less likely to contact a user.

Lastly, it will be appreciated that this seat will normally extend laterally beyond the rim of the conventional water closet pan which is generally ovate. Accordingly, it may be desirable to provide or associate the seat with floor-engaging members at its sides so that the hand supports are themselves firmly supported.

We claim:

1. A unitary moulded seat for sanitary equipment, which seat has an upper surface at least partially defined by:

an elongate aperture wholly bounded by said surface, and extending longitudinally between the front and rear of said seat;

two elongated thigh-supporting first profiled areas individually laterally dished to a concave trough form and positioned to extend longitudinally, in mutually spaced manner, from the front periphery of said seat to corresponding locations in the central region along respectively opposite sides of said aperture; and

a generally U-shaped buttock-clearance second profiled area extending around the rear and partway along the sides of said aperture to join said first areas, said second area being concavely dished in both the longitudinal and lateral directions and extending to a greater extent in said seat than said first areas, and said second area being joined to each of said first areas by respective similar abrupt changes of profile.

2. A seat according to claim 1, wherein said first areas are substantially rectilinear in their respective longitudinal directions.

3. A seat according to claim 1, wherein the outermost lateral peripheries of said first areas are mutually divergent towards the front periphery of said seat.

4. A seat according to claim 1, wherein said aperture has a plan view shape of a slot longitudinally convergently tapered from the rear to the front of said seat.

5. A seat according to claim 1, wherein said upper surface comprises a single generally U-shaped third profiled area which is elevated relative to the remainder of said surface; said third area including a first part extending along the rear periphery of said seat, and two like second parts extending at least partway along respectively opposite side peripheries of said seat; and said second parts each increase in elevation with longitudinal extension both from the front and rear of said seat to attain a maximum elevation at an intermediate location.

6. A commode comprising:

a rigid framework;

panels cladding said framework to define a hollow chamber having an opening uppermost therein;

a unitary moulded seat superimposed on said chamber, which seat has an elongated aperture extending longitudinally between the front and rear of said seat and being wholly bounded by said seat; two elongated thigh-supporting first profiled areas formed in the upper surface of said seat, said first areas being individually laterally dished to a concave trough form and positioned to extend longitudinally, in mutually spaced manner, from the front periphery of said seat to corresponding locations in the central region along respectively opposite sides of said aperture;

a generally U-shaped buttock-clearance second profiled area formed in the upper surface of said seat, which second area extends around the rear and partway along the sides of said aperture to join said first areas, said second area being dished in both the longitudinal and lateral directions and extending to a greater extent in said seat then said first areas;

a reservoir vessel releasably engaged within said chamber below said aperture;

legs depending from said framework to support said commode;

two posts extending upwardly from said framework, said posts being located at the rear of said seat and mutually spaced towards respectively opposite sides thereof;

a backrest connected with said posts to extend therebetween; and

two hand-grip, arm-rest members connected with respective ones of said posts to extend forwardly therefrom above the sides of said seat.

7. A commode according to claim **6**, wherein:

said chamber extends laterally from one side below said seat;

said seat extends laterally from said one side in a substantially planar supplementary seat integrally formed therewith to define a seating platform superimposed on said chamber; and

the one of said hand-grip, arm-rest members located over said one seat side is selectively rotatably operable to extend alternatively over the rear of said supplementary seat.

8. A commode according to claim **6**, wherein said chamber extends laterally from both sides thereof below said seat to define, in plan view, an angled configuration of approximately right-angled shaping;

said seat extends laterally from said two sides in respective supplementary seats integrally formed therewith to define a seating platform of corresponding right-angled shaping superimposed on said chamber; and

said hand-grip, arm-rest members are each selectively rotatably operable to extend alternatively over the rear of the respectively adjacent one of said supplementary seats.

9. A commode according to claim **8**, wherein said legs and said posts are separately adjustable in respect of height.

10. A commode according to claim **8**, wherein said chamber comprises a metal framework which extends to form, at least partially, said legs and posts, which framework is clad with said seat and body panels of integrally moulded plastics material.

* * * * *