

Dec. 6, 1938.

F. E. JONES ET AL

2,139,273

BEDPAN

Filed Dec. 31, 1936

3 Sheets-Sheet 1

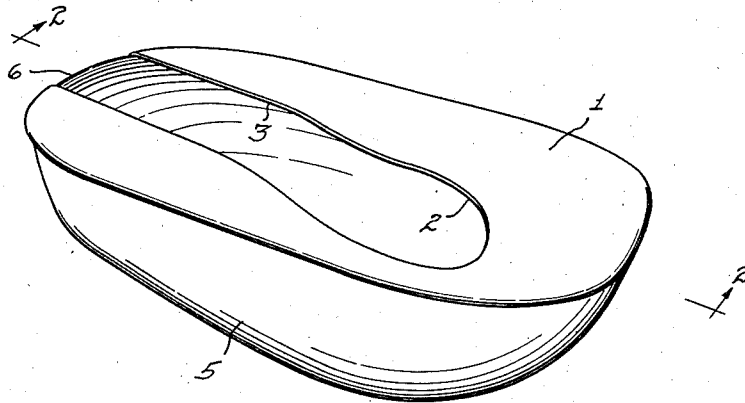


Fig. 1

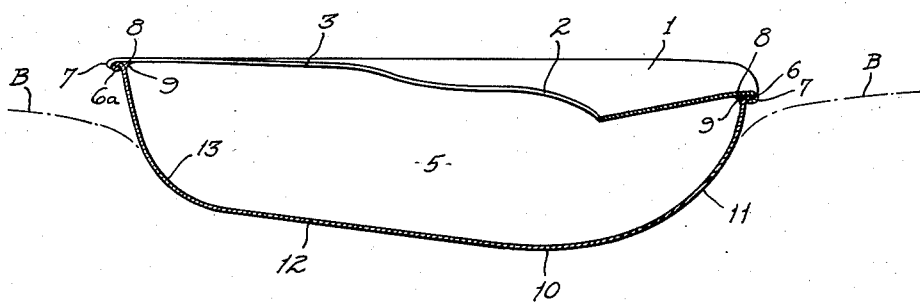


Fig. 2

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3 Sheets-Sheet 2

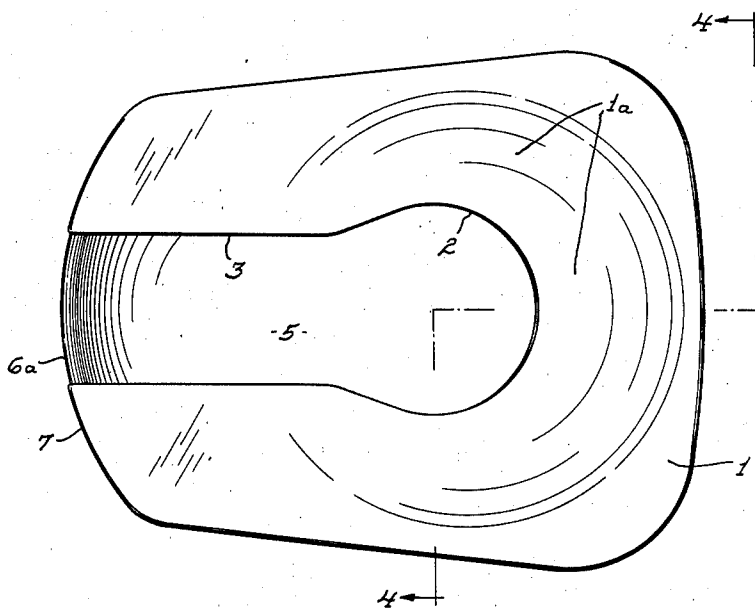


Fig. 3

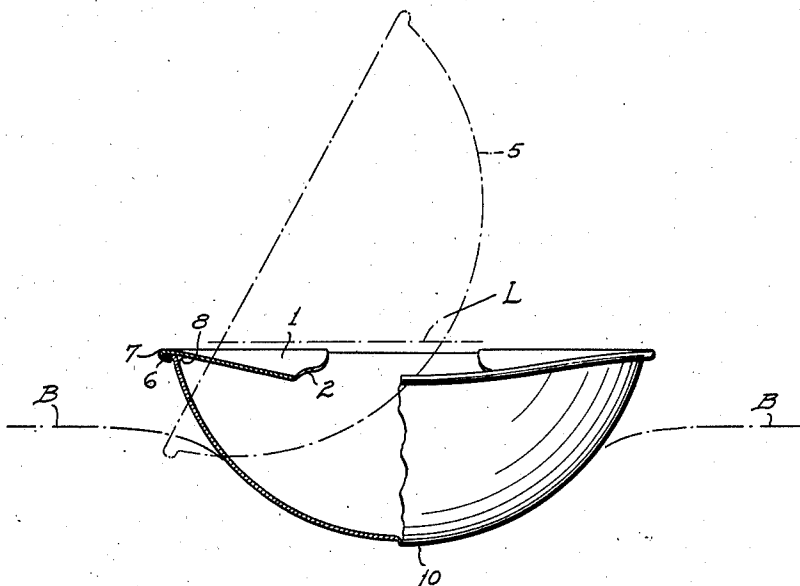


Fig. 4

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3 Sheets-Sheet 3

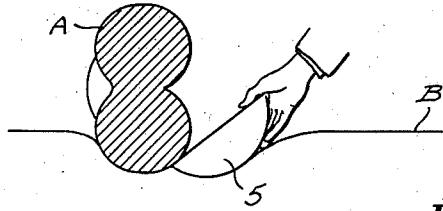


Fig. 5

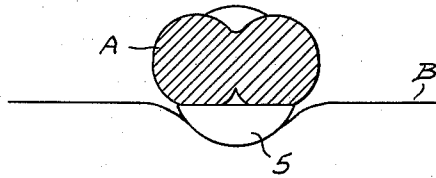


Fig. 6

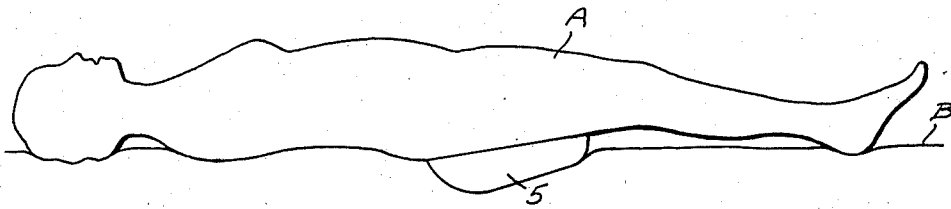


Fig. 7

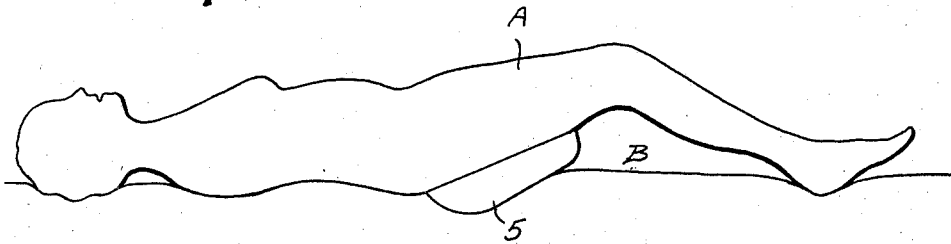


Fig. 8

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# UNITED STATES PATENT OFFICE

2,139,273

## BEDPAN

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Application December 31, 1936, Serial No. 118,510

7 Claims. (Cl. 4—112)

This invention relates to bed pans for invalids.

The principal objects are: to provide a bed pan construction whereby the operation of placing the patient's body onto the pan is facilitated; to provide a construction which, in use, will not cause discomfort to the patient; to provide a bed pan construction which will afford increased effective capacity and depth without having to make the device unwieldy or unusually large in size; to provide an improved bed pan construction which may be easily cleaned; to provide a bed pan construction, which will reduce likelihood of displacement of the pan out of position with respect to the patient, and to provide a bed pan which, when in use, will not hinder the body functions.

Other objects and advantages of the invention will become apparent from the following description, relating to the accompanying drawings. The essential characteristics are summarized in the claims.

Referring to the drawings, Fig. 1 is a perspective view of the improved bed pan; Fig. 2 is a longitudinal sectional view taken as indicated by the line 2—2 on Fig. 1, showing diagrammatically the position of the supporting surface of the mattress or bed-clothing; Fig. 3 is a plan view of the pan; Fig. 4 is an end and partial transverse sectional view, taken as indicated by the line 4—4 on Fig. 3; Fig. 4 also shows diagrammatically the manner in which the pan is tilted in placing the body of the patient thereon. The remaining figures are in the nature of diagrams illustrating the action of placing the pan beneath the patient; Fig. 5 being a cross-section of the patient lying on his or her side at the time the edge of the pan is just being inserted beneath the buttocks; Fig. 6 is a similar view after the patient is rolled onto the pan; Fig. 7 is a side view of the patient in the position shown in Fig. 6, that is, lying at full length on the pan immediately after rolling onto it; Fig. 8 is a side view illustrating the position of the patient and pan after the patient's legs have been drawn up into a comfortable, relaxed position, to facilitate evacuation.

Referring further to the drawings, the pan is preferably made from two sheet metal sections comprising a top member 1 and a bottom member 5. Materials other than metal may of course be used, for instance, plastics, such as Bakelite. As viewed in plan (Fig. 3), the shape of the pan is generally oval and has its widest part at the head end (normally toward the head of the patient). The sides may be straight, as shown, or slightly bowed, and both ends are rounded on generous curves. The top is preferably dished inwardly

from all margins and a more pronounced dish effect or concavity is formed centrally of the top at the wide end as indicated at 1a. An opening is formed in the top, symmetrically with reference to said axis; having its widest portion 2 near the head end of the pan and a relatively restricted portion 3 extending longitudinally clear to the foot end. The enlarged portion of the opening is located near the region of greatest concavity. The concavity at 1a by conforming generally to the buttocks portion of the patient, determines the normal region of greatest downward pressure of the patient's body on the pan.

The main portion 2 of the opening 2—3 is preferably less than one-half the width of the top member 1, at its widest part. The shape of said opening may of course be varied considerably. For adult use the maximum lateral dimension of the opening is preferably between 4 and 4½ inches, which is at least an inch less than the corresponding lateral dimension of the main portion of the opening provided in most bed pans for adult use. This affords amplified support for the buttocks portion of the body, reduces likelihood of spillage in removing the patient from the pan (as will later be more fully discussed), and does not cramp or tend to restrict the body passages. The latter advantage arises principally from the fact that the caudal portions of the torso are not permitted to sag into the opening of the pan, wherefore the body passages will not be wedged or the actuating muscles thereof prevented from functioning in a normal manner.

Referring to the bottom member 5 of the pan, this substantially conforms in plan to the shape of the top member 1, exclusive of the opening 2—3 in the latter. The top and bottom members may be joined together in any suitable fashion, but preferably the bottom member has a continuous flange 6 which extends into the embrace of an inwardly folded portion 7 of the top member, (see Fig. 4), which clamps the flange 6 and holds the bottom and top members securely together. Between the folded portions (at the foot of the pan) the edge of the bottom member may be curled downwardly into a bead, as shown at 6a, Figs. 2 and 3. The superimposed rim portions of the pan may be spot-welded or otherwise additionally treated to secure a tight joint. Other forms of joints between the top and bottom members may, of course, be used; for instance, plain butt-welding, acetylene welding, etc.

All exposed surfaces of the pan (inside and out) are preferably coated with vitreous enamel, and, during the coating process, the inside seam

occurring between the top and bottom members is filled in with enamel material as at 8, forming a fillet surface at 9, whereby the most remote portions of the inside of the pan are made easy to clean. All portions of the bottom being rounded, the likelihood of chipping or fracturing of the enamel is reduced to a minimum. The only relatively sharp turns or corner effects are at the upper rim, and at that region the pan is greatly reinforced by the joint (three thicknesses of metal), wherefore likelihood of serious fracture or chipping is remote.

An important feature of the bottom is that it forms, with the top, a supporting member for patient's body which is of gradually decreasing height in directions outwardly from the normal region of greatest concentrated downward pressure, toward all marginal edges of the pan, or at least toward the opposite sides and one end; i. e., providing a rocker effect in at least two directions, normal to each other, as well as substantially a blunt point for depressing the bed clothing or mattress.

The cross-sectional shape of the bottom may be similar from end to end, about as shown in Fig. 4, the pan being bi-symmetrical about its longitudinal axis. The region of greatest depth (at 10) afforded by the bottom member 5 is substantially in line with the center of the depressed or dished region 1a of the top. From this region 10 the bottom curves upwardly with increasing steepness toward the head as at 11, and is practically straight as at 12 to provide a contact line for supporting the pan on a horizontal surface. Near the foot end, the bottom curves upwardly on all sides, on a generous radius substantially as indicated at 13. The pan stands naturally in an upright position when set down on a flat horizontal surface, and rocks to such upright position if set down tipped.

Referring further to Fig. 4, the broken lines which conform to the outline of the pan, indicate in a general way the tilted position of the pan when the body of the patient is about to be placed on it. For this operation the patient (illustrated by A in Figs. 5-8) lies or is placed on his or her side as indicated at Fig. 5, and the tapered side edge portion of the pan is tucked slightly under the patient's body; whereupon it is an easy matter to roll the patient into recumbent position over the pan, back side down and with the buttocks centered by the depression 1a, as indicated by Figs. 6 and 7.

The rounded head portion of the body allows the pan to tilt endwise so that the supporting surface of the head end is rocked, by the weight of the patient, into a position close to the bed clothing or supporting mattress. This same rocking movement elevates the foot end of the pan, reducing likelihood of spillage from such foot end as illustrated in Fig. 8. A series of tests demonstrated that the straight portion 12 of the bottom becomes inclined about 15° to the horizontal under the weight of a patient's body, bringing the front edge even with the mattress as a comfortable support for the patient's back.

In the supported position of the patient's body, solid fecal matter is received through the enlarged portion 2 of the opening into the deepest portion of the pan, and this depth is always sufficient to prevent contact of such matter with the patient's body. Furthermore, with the region of application of greatest weight over the blunt spherical nether region afforded by the deepest portion of the pan, the pan will become

deeply embedded into the bed clothing or mattress indicated at B, so that the patient's body is not locally elevated above such clothing or mattress to such extent that the patient is made uncomfortable, and so that there is practically no likelihood of the pan sliding to the right or left, or lengthwise of the patient, out of position. The relatively restricted width of the opening, and amplified width and depth of the pan in the transverse plane of the larger portion 2 of the opening result in that, when the patient is to be removed from the pan, this may be done by rocking the patient back to initial position with practically no danger of spilling the liquid contents of the pan onto the bed clothing. This will be clear from Fig. 4 wherein the line L indicates the maximum height at which liquids will be retained in the pan when tipped. In a pan built for adult use—with a total length of about 15 inches; width (across larger part of opening) 12 inches; in which the opening measures 4 $\frac{7}{8}$  inches at its widest part and 3 $\frac{3}{4}$  inches at its narrowest (minimum width of back rest surface between the opening and front rim: 4 inches)—the retaining capacity for liquids when tipped sidewise (vertically) is in excess of 2000 cc. The pan may be carried small end up and retain nearly the volume mentioned, which is more than ever required for douche purposes.

Specifically in relation to douches, the present construction is ideally suited from the standpoint of capacity, comfort to the patient and room afforded the attendant in which to operate. The depth of the bottom and width of the extended part 3 of the opening are such that the attendant can easily insert a hand into the opening and move it the entire length as may be required without having to touch the contents of the pan. The amplified form-fitting back rest between the opening portion 2 and the larger end of the pan is important in every case. The usual form of bed pan, both by reason of its narrow support for the back of the patient (distance between the opening and the forward rim of the pan being about two inches) and by reason of the height at which such rim portion stands above the mattress when in use (at least two inches), always discomforts the patient. Thus, when it is considered that the present construction affords at least twice the supporting area for the central region of the patient's back, and that the supporting region becomes depressed substantially even with the mattress, it will be seen that said construction is vastly superior from the standpoint of comfort to the patient as well as in other respects previously mentioned.

It will also be seen that the pan can be placed under the patient by the rolling operation above described in any direction relative to the axis of the depressed region 1a of the top member (e. g., laterally or longitudinally of the pan) as may be required in special cases.

We claim:

1. A bed pan, comprising an elongated top member having an aperture terminating considerably short of the rear end of the pan, the rear portion of said top being depressed toward the opening, the body of the pan comprising a bottom portion diverted upwardly at the sides, front and rear to join the top, the diversion being materially greater at the front than at the rear so that there is an approximately vertical wall leading downward from the opening at the front end of the pan and an inclined wall leading downwardly from the rear end assisting in tending to

tip the pan upwardly when there is downward pressure on the rear end, the side walls connecting the bottom with the top comprising outwardly convex portions composed of nearly parallel longitudinal lines so that the pan may readily rock laterally without liability of skewing, the center portion of the bottom being composed of a surface made of substantially straight longitudinal lines giving the pan stability in a fore and aft direction, and preventing teetering.

2. A bed pan, comprising an elongated top member having an aperture extending from the front end and terminating in a rounded boundary considerably short of the rear end of the pan, the rear portion of said top being depressed toward the opening, the front portion of the top being nearly horizontal, so that there is a change in the angle of the top adapted to be felt by the patient and assist in locating the patient in the proper position over the rear portion of the pan, the body of the pan comprising a bottom portion diverted upwardly at the sides, front and rear to join the top, the diversion being materially greater at the front than at the rear so that there is a relatively deep space at the front for use of the attendant and so that the pan may readily tip upwardly when there is downward pressure on the rear end, the side walls connecting the bottom with the top comprising outwardly convex portions composed of nearly parallel longitudinal curves so that the pan may readily rock laterally without liability of skewing.

3. A bed pan, comprising a hollow body having a comparatively flat top provided with a substantially parallel-sided aperture extending from the front of the pan to a point spaced from the rear of the pan and positioned centrally of the pan in a transverse direction, the width of such opening being approximately one-third of the width of the pan, the body having a bottom provided with a substantially flat surface the outline of which is substantially below and the same as the outline of the opening in the top, the rear edge of said flat bottom surface being joined to the top by an upwardly sloping surface the contour of which is substantially the same in all longitudinal vertical planes extending through the flat bottom surface of the pan, whereby the pan may rock on such rear surface without tending to rock sidewardly at the same time, the side edges of the flat bottom portion being joined to the top by side surfaces which are adjacent the flat bottom are cylindrical and extend tangentially from such flat bottom outwardly and upwardly toward the top surface, the major portions of which side surfaces have substantially the same contour in longitudinally-spaced, laterally-extending vertical planes, whereby the pan may rock truly sidewardly without tending to rock forwardly or rearwardly at the same time.

4. A bed pan, comprising an elongated top member having an aperture extending to one end and a depressed bottom member joining the same to form a partially closed vessel, the bottom member being generally rounded transversely of the pan as a rocker support and having a straight relatively narrow longitudinally extending transversely curved central portion for contact with

a supporting surface, the pan, as viewed from the top, having substantially straight sides which converge at an angle of less than 20° toward said end of the pan to minimize tendency of the pan to becoming skewed when mounting a patient onto the pan by a rocking action, and the pan being approximately as deep in the region of said end as at any other portion of the pan whereby to afford ample working depth in the end region, the bottom member extending upwardly a substantial distance adjacent said end to provide a retaining wall effect of substantial height.

5. A bed pan, having an elongated top rest with relatively broad supporting surfaces for the body of the patient, and a depressed rocker bottom joined thereto, the pan when viewed from the top having substantially straight sides which converge at a comparatively slight angle, said bottom being rounded in opposite directions transversely of the pan from a straight axially central region thereof on which the pan comes to rest in a non-tilted position, the bottom and top converging to wedge effects at the sides to facilitate placement of the pan partly beneath the body of the patient in the manner of a wedge thereby enabling the patient to be readily rolled onto the top of the pan, the depth and lateral curvature of the pan being substantially the same from end to end, so that a rocking axis is established such that the patient's body can be rolled substantially only in vertical planes without imposition of forces tending to swing such body parallel to the bed surface.

6. A bed pan, having an elongated top and a depressed bottom which forms a trough whose axis extends longitudinally of the pan, the top having an elongated centrally disposed opening extending from one end of the pan to an intermediate region of the top leaving relatively broad imperforate inwardly sloping surfaces at each side and at one end of the opening, which surfaces are nearly straight where cut by vertical planes radiating from a center lying within the opening, said opening being sufficiently wide throughout its length to receive the hand of an attendant, the greatest depth of the pan being beneath the opening and for substantially the entire length thereof, the side portions of the bottom which lead from the part beneath the opening to the top being outwardly convex and composed of substantially straight lines substantially parallel with the longitudinal axis of the pan, whereby the pan may rock sidewise without tending to rock forwardly or rearwardly.

7. A bed pan, having an elongated bottom portion of decreasing depth from a longitudinal central region toward the sides and one end, an apertured top which conforms substantially in outline to the bottom and has a relatively broad concavity in the nature of a shallow trough extending to one end of the pan and there intercepting an end wall of the pan in line with the aperture, said trough extending on opposite sides of the aperture, and serving to center and support a patient's body and provide a comfortable rest for the spine of the patient.

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