March 24, 1953 DE MERLE E. ECKART ET AL 2,632,185

BEDPAN DEVICE

Filed Nov. 26, 1948 3 Sheets-Sheet 1

Fig. 1.

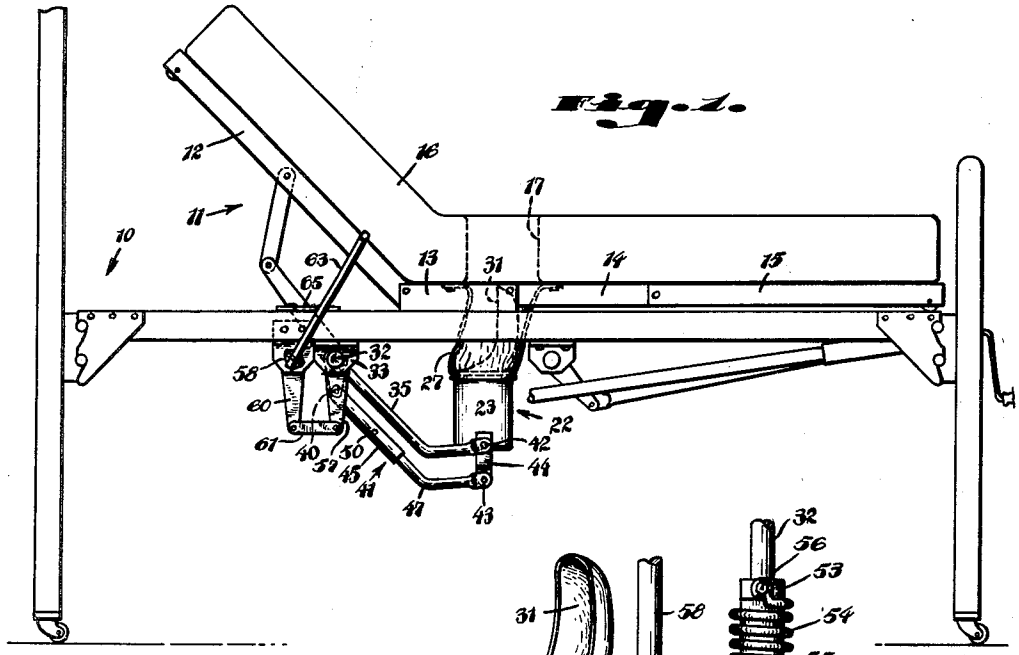


Fig. 2.

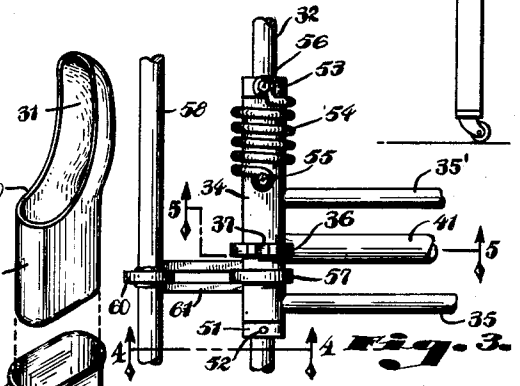


Fig. 3.

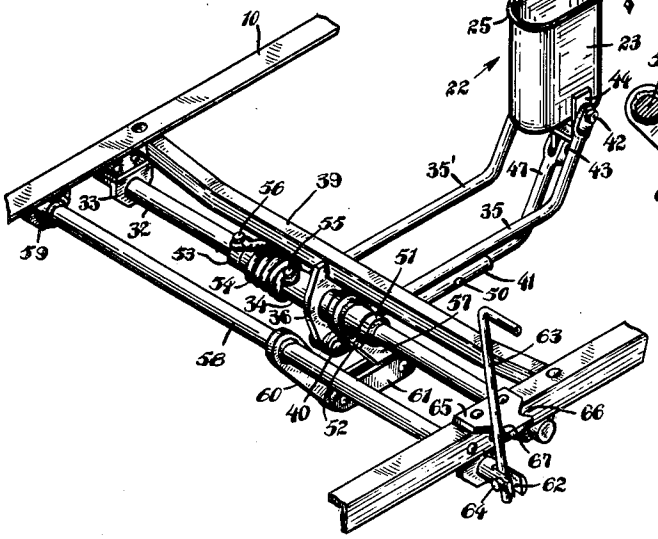
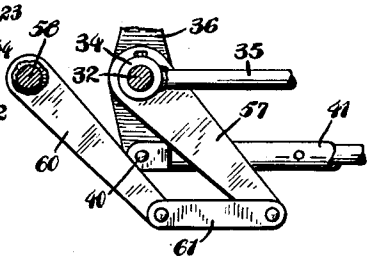


Fig. 4.



INVENTOR.
JOHN R. ROSENLEAF and
DE MERLE E. ECKART,
BY: Harold B. Hood
ATTORNEY.

March 24, 1953 DE MERLE E. ECKART ET AL 2,632,185

BEDPAN DEVICE

Filed Nov. 26, 1948 3 Sheets-Sheet 2

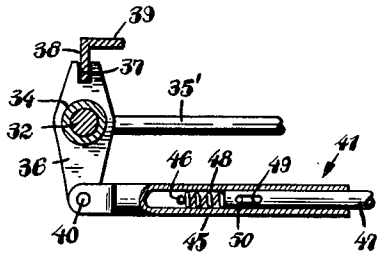


Fig. 5.

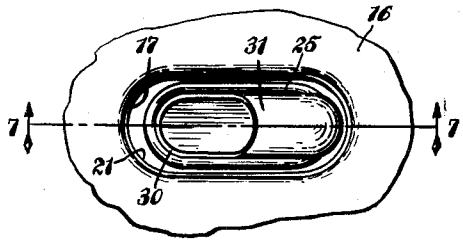


Fig. 6.

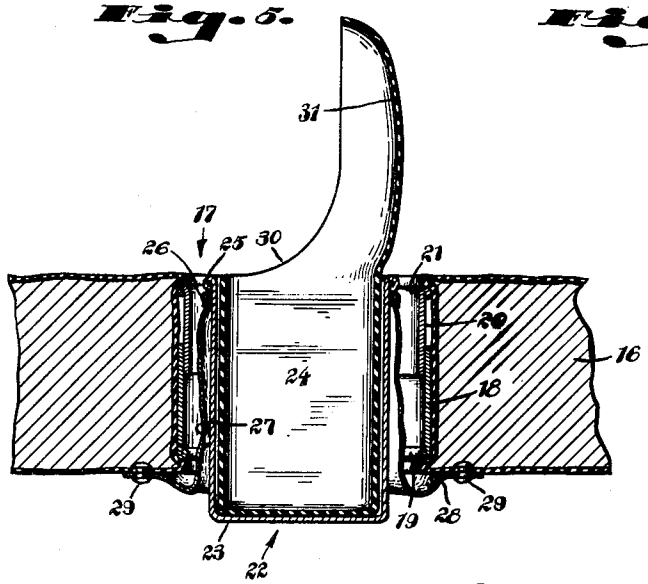


Fig. 7.

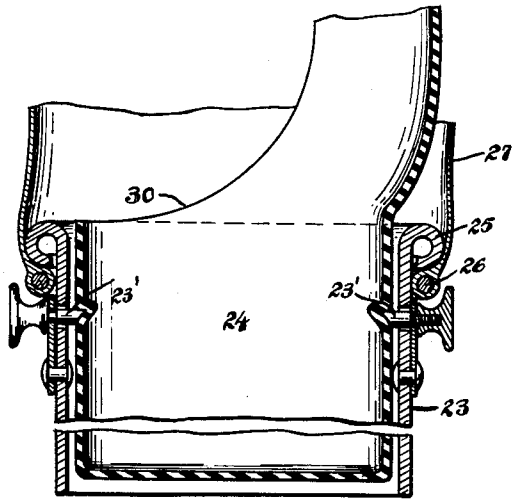


Fig. 8.

INVENTOR.
JOHN R. ROSENLEAF and
DEMERLE E. ECKART,
BY: Harold B. Hood.
ATTORNEY.

March 24, 1953 DE MERLE E. ECKART ET AL 2,632,185

BEDPAN DEVICE

Filed Nov. 26, 1948 3 Sheets-Sheet 3

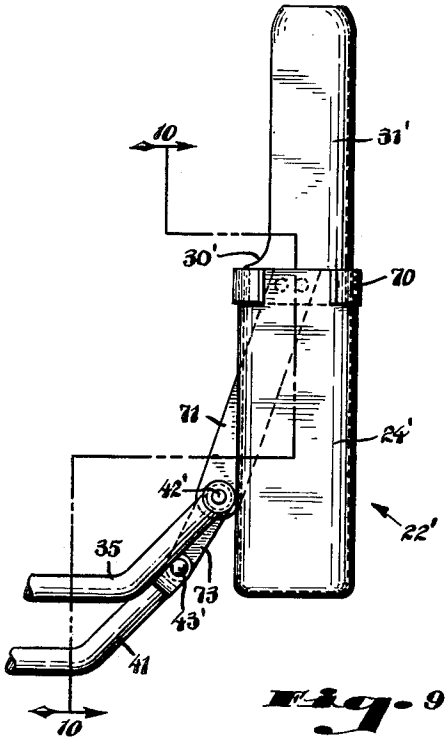


Fig. 9.

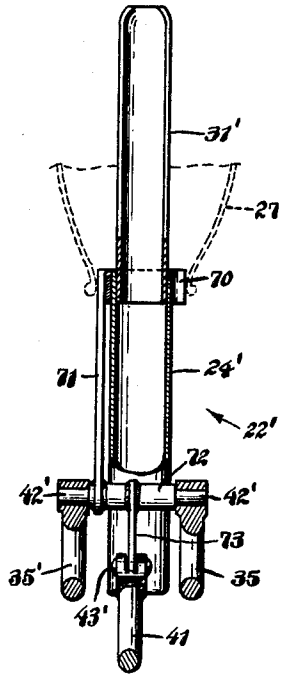


Fig. 10.

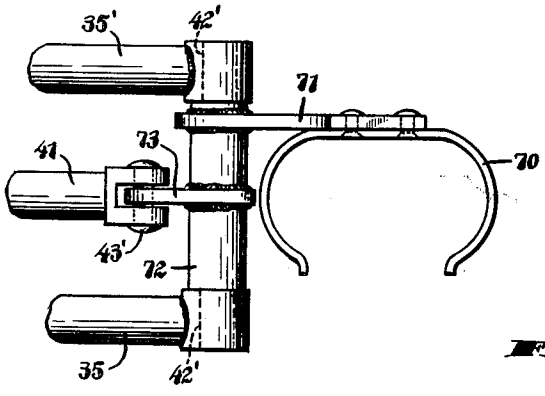


Fig. 11.

INVENTOR.
JOHN R. ROSENLEAF and
DEMERLE E. ECKART,
BY: Harold B. Hood.
ATTORNEY.

Patented Mar. 24, 1953 2,632,185

UNITED STATES PATENT OFFICE

2,632,185

BEDPAN DEVICE

De Merle E. Eckart, Abilene, and John R. Rosenleaf, Enterprise, Kans.

Application November 26, 1948, Serial No. 62,112

20 Claims. (Cl. 5—90)

1

The present invention relates to a bed pan device, and is primarily concerned with the provision of means for supporting a container upon a bed frame in such a condition that the occupant of the bed may readily and conveniently shift the container between a position in which it comfortably and effectively fits the pelvic floor of an occupant of the bed so that such occupant may evacuate the bladder and lower colon, and a position, below the bed, in which the container will not interfere with the comfort of the patient and is accessible to an attendant for removal, replacement or other necessary attention. Among the objects of the invention are to provide a novel mounting and actuating means for such a container; to provide a novel container, consisting of outer and inner receptacles, adapted for the above purposes, the inner receptacle being removable from the outer receptacle for disposal of the contents thereof; to provide a support for such a device of such character that it can be elevated into position for use through a minimum effort on the part of the occupant of the bed; and to provide means associated with such a receptacle and support to guard against air or liquid flow through the necessary opening in the mattress with which the device is associated. Further objects of the invention will appear as the description proceeds.

To the accomplished of the above and related objects, our invention may be embodied in the forms illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific constructions illustrated and described, so long as the scope of the appended claims is not violated.

Fig. 1 is a side elevation of a hospital bed of known construction, one form of our bed pan device being shown in operative association therewith;

Fig. 2 is an enlarged fragmental perspective view of a container and mounting therefor forming a part of our invention;

Fig. 3 is an enlarged fragmental plan view of certain operative parts of the mounting device;

Fig. 4 is a fragmental longitudinal section taken substantially on the line 4—4 of Fig. 3;

Fig. 5 is a similar section taken substantially on the line 5—5 of Fig. 3;

Fig. 6 is a fragmental plan of a portion of a mattress provided with an opening therethrough, and showing the container of our invention positioned therein;

Fig. 7 is a longitudinal fragmental sectional view taken substantially on the line 7—7 of Fig. 6;

Fig. 8 is a fragmentary sectional view showing optional means for supporting an inner receptacle in an outer receptacle or holder;

Fig. 9 is a side elevation of a modified form of container showing its association with the mounting or supporting means;

2

Fig. 10 is a transverse section taken substantially on the line 10—10 of Fig. 9; and

Fig. 11 is a plan view of the supporting means of Figs. 9 and 10, the container having been removed therefrom.

Referring more particularly to the drawings, it will be seen that we have illustrated a hospital bed of known construction, and comprising a main frame, indicated generally by the reference numeral 10, and supporting an articulated frame generally indicated by the reference numeral 11 and comprising a hinged head section 12, a stationary mid-section 13, and hinged sections 14 and 15. A relatively flexible mattress 16 is supported on the frame 11 in a well known manner.

Within the region of the stationary frame section 13, the mattress 16 is formed with an opening 17 therethrough, said opening being laterally central of the mattress and longitudinally in a position immediately beyond the pelvic region of an occupant of the bed. Preferably, but not necessarily, a generally tubular shield element 18 of relatively rigid material such as sheet metal, and provided with a bead 19 at one end, is snugly received within the lower portion of the opening 17 to reinforce the lower portion of that opening, and a similar shield 20, having a bead 21, is similarly received in the upper portion of that opening, the shield sections 18 and 20 being telescopically associated to permit compression and expansion of the mattress, while maintaining the opening against transaxial collapse. A container, indicated generally by the reference numeral 22, will preferably comprise an outer receptacle or holder 23 and an innner receptacle 24 removably mounted in the outer receptacle. The open mouth of the receptacle 23 is preferably bounded by a bead 25 with which is associated one resiliently expansible end 26 of a flexible sheath 27 preferably formed of liquid proof sheet material, such as rubber, synthetic rubber, or rubberized fabric. The sheath 27 is generally tubular, and its end 26 may be rendered resiliently expansible by the incorporation therein of a rubber cord or a coiled spring, or the like. At its opposite end, the sheath 27 is outturned to form a peripheral flange 28, and the mating elements of separable fasteners 29 are secured, respectively, to the flange 28 and to the lower surface of the mattress 16 in a perimetral grouping around the lower mouth of the opening 17. It will be readily apparent that, when said flange is so secured to the mattress, as the container 22 is moved between the position illustrated in Fig. 7 and that illustrated in Fig. 1, the end 26 of the sheath 27 will move with said container to assume the conditions illustrated in said two figures; and that the sheath will, at all such times, prevent air flow through the opening 17.

While the receptacle 23 is shown in Fig. 7 to be closed at its bottom, it will be obvious that it need not be so closed. Its bottom wall may be in the

form of a spider; or it may be a mere sleeve without a bottom wall, the receptacle 24 being supported therein in any suitable fashion, as by means of the pins 23' shown in Fig. 8.

At is upper end, the receptacle 24 is provided with an open mouth guarded by a lip portion 30 which, in the position of Fig. 7, lies substantially in the plane of the upper surface of the mattress 16. The lip 30 merges with an upstanding portion 31 of the receptacle 24 which, in the position of Fig. 7, projects upwardly beyond the upper surface of the mattress 16 to present, toward the head end of the bed, a shell-like contour to fit the pelvic floor of an occupant of the mattress 16, while the lip 30 underlies and substantially fits the dorsal portion of the occupant's trunk, but substantially without supporting pressure thereagainst. The structural details of the receptacle 24 are more fully disclosed and claimed in our co-pending application Serial No. 62,114, filed November 26, 1948, for Bed Pan.

A bar 32, at least a portion of which is cylindrical in transverse section, is adapted to be suitably fixedly supported in brackets 33 adapted to be secured to the frame 10, said bar extending transversely of said frame. A sleeve 34 is mounted upon said bar for oscillation about the axis of said bar; and one or more arms 35, 35' are fixed to said sleeve to move therewith. A bracket 36 is loosely supported on the sleeve 34 and, at its upper end, is bifurcated (Fig. 5) as at 37 to engage the downwardly projecting flange 38 of an angle iron 39 comprising a standard transverse brace incorporated in the frame 10. Obviously, if desired, the bracket 36 may be held against oscillation relative to the axis of the bar 32 in any other suitable fashion, but we prefer to utilize the brace 39 which is already present in the standard frame 10.

The bracket 36 provides a journal mounting 40 for an arm indicated generally by the reference numeral 41, the arm being similar in shape and extent to the arm 35, and the journal mounting 40 being located upon an axis parallel with, but spaced below, the axis of the bar 32 about which the sleeve 34 is oscillable. The arms 35 and 35' are pivotally associated with the container 22, and the arm 41 is similarly pivotally associated with said container, the pivotal axes connecting said container with the arms 35, 35' and 41 being parallel with each other and with the axis of the bar 32, and being vertically spaced from each other by an amount equal to the vertical spacing between said bar axis and the axis of the journal mounting 40. In the embodiment of the invention illustrated in Figs. 1–7, a saddle yoke 44 is fixed to the receptacle 23 and provided with pivots 42 and 43 whereby said container is supported upon the arms 35 and 41, respectively.

Preferably, the arm 41 comprises a tube 45 and a rod 47 telescopically received in said tube. A pin 46 enters the tubular element 45 to provide an abutment for one end of a spring 48 the opposite end of which engages the inner end of the rod 47 to urge the same outwardly with the respect to said tube 45. The rod 47 is provided, in the region received in the tube 45, with a longitudinally extending transverse slot 49 traversed by a pin 50, whereby said rod is held against axial rotation relative to the tube 45 and is limited in its axial movement relative to said tube. When the rod 47 is in the position shown in Fig. 5, the container 22 will occupy the attitude shown in Fig. 1.

Where the telescopic association above described is used, it will be clear that the container 22 will be capable of resiliently-opposed oscillation, from its illustrated attitude, in which the pivots 42 and 43 lie in a common vertical plane, to a limited extent about the axis of the pivotal connection 42. Such movement, of course, facilitates adjustment of the receptacle 24, when in its position illustrated in Fig. 7, to a position of maximum comfort to the occupant of the bed; and further facilitates removal of the receptacle 24 from the container 22 when the assembly is in its lowermost position, as shown in Fig. 1.

As is most clearly apparent from a consideration of Figs. 2 and 3, the sleeve 34 is restrained against axial movement relative to the bar 32 by a collar 51, abutting one end of said sleeve and adapted to be fixed in an optimum position of adjustment relative to the bar 32 by means of a set screw 52 or the like, and a second collar 53 abutting the opposite end of the sleeve 34 and similarly adapted to be secured to the bar 32. We prefer to provide spring means of any suitable character tending to hold the container 22 in its uppermost position. One advantageous form of such means is shown in Figs. 2 and 3, but other arrangements for obtaining this effect may be used. As shown, a coiled spring 54 is sleeved on the bar 32, and may, as shown, surround the sleeve 34. One end of said spring is anchored at 55 upon the sleeve 34, and the other end thereof is anchored at 56 upon the collar 53. Because of the fact that the collar 53 may be rotationally adjusted about the axis of the bar 32, it will be obvious that any desired degree of spring force can be applied to the sleeve 34; and preferably the collar 53 will be so adjusted that, when the spring is in equilibrium, the container 22 will be held in the position illustrated in Fig. 7. Otherwise expressed, it may be stated that the spring 54 will be so tensioned that, whenever the sleeve 34 is free to move under the influence of said spring, it will be shifted by the spring into a position in which the container 22 is held in the location of Fig. 7.

An alternative form of container, indicated generally by the reference numeral 22', is shown in Figs. 9 to 11 in association with the arms 35 and 41. A spring clip 70, which is preferably of the contour illustrated most clearly in Fig. 11, is fixedly supported upon a bar 71 which, in turn, is carried upon a bearing 72 whose opposite ends are provided with trunnion elements 42', 42' pivotally engaged, respectively, with the arms 35, 35'. A lever 73 is welded or otherwise suitably secured to the bearing member 72 intermediate the ends thereof, and is pivotally connected to the arm 41 at 43'.

In this form of the assembly, the "inner receptacle" comprises a vessel 24', which may preferably be formed of disposable material, and a nozzle 31' formed to provide a lip 30' similar to the lip 30 of the form illustrated in Figs. 1 to 7, the lower end of the nozzle 31' being snugly receivable in the upper open mouth of the vessel 24'; and the spring 70 being engageable with the upper end of the vessel 24', directly in the region receiving the lower end of the nozzle 31', whereby the "inner receptacle" is supported in the holder 70. The sheath 27 will be assembled with the container 22' in the manner suggested in Fig. 10.

A lever 57 is fixed to the sleeve 34 and projects radially therefrom, so that said sleeve may be rotationally shifted by actuation of said lever.

A rock shaft 58 is mounted upon the frame in suitable cooperative relation with the lever 57.

As shown, said rock shaft is carried in bearings 59 secured to the longitudinally extending elements of the frame 10, and extending transversely across said frame. Alternatively, the rock shaft may be a mere stub suitably supported in any fashion for oscillation upon an axis parallel to the axis of the bar 32. A lever 60 is fixedly associated with the rock shaft 58, and one or more links 61 provide an operative connection between the lever 60 and the lever 57.

In the illustrated embodiment of our invention, the rock shaft 58 extends outwardly beyond one longitudinal element of the frame 10, and its outboard portion is slotted, as at 62, to receive an operating lever 63 pivotally secured to said rock shaft by a pin 64 traversing the slotted end of said rock shaft. This mounting means permits oscillation of the lever 63 about the axis of the pin 64, while providing an operating connection between said lever and said shaft. A latch plate 65 is secured to the adjacent element of the frame 10 and is formed to provide oppositely opening retaining notches 66 and 67. When the lever 63 is engaged in the notch 67, the container 22 is positively held in the position of Fig. 7. The upper end of the lever 63 is disposed in a position wherein it is readily accessible to an occupant of the bed; and it will be obvious that, upon a slight movement of said lever in a counter-clockwise direction, as viewed in Fig. 1, the lever will be disengaged from the notch 67, whereafter it may be rocked slightly in a clockwise direction, as viewed in Fig. 2, about the axis of the pin 64, to clear the plate 65. Now, clockwise movement of the lever 63, as viewed in Fig. 1, will turn the sleeve 34 in a clockwise direction to move the arms 35 and 41 in a corresponding direction to draw the container 22 downwardly into the position of Fig. 1. Now, counter-clockwise oscillation of the lever 63 about the axis of the pin 64 will bring said lever into registry with the notch 66, whereupon the lever may be released, and the parts will be held in the positions illustrated in Fig. 1.

Of course, the receptacle 24 may be removed from the receptacle or holder 23 when the parts are in the positions illustrated in Fig.7; or, alternatively, an attendant may separate the fasteners 29 while the parts are in the positions illustrated in Fig. 1, and remove the receptacle 24 without disturbing the patient.

If, with the parts in the positions of Fig. 1, the patient resides to use the bed pan, he merely grasps the lever 63, shifts it slightly in a clockwise direction as viewed in Fig. 1 and then rocks it in a clockwise direction as viewed in Fig. 2, whereupon the spring 54 will lift the container 22 into the position of Fig. 7.

Of course, the usual rubber sheet and the lower bed sheet will be provided with openings registering with the opening 17 in the mattress; and, if desired, said sheets may be provided with means, such as separable fasteners, whereby the regions immediately surrounding the openings therethrough may be secured either to the upper surface of the mattress or to the bead 21 of the shield element 20.

We claim as our invention:

1. The combination with a mattress having an opening extending substantially vertically therethrough, of a frame supporting said mattress, a container adapted to be located in said opening, means supported on said frame and carrying said container, said means being operable to shift said container between a position in said opening and a position beneath said mattress, and a substantially liquid-proof, flexible, tubular sheath snugly perimetrally engaging said container and secured to said mattress substantially about the perimeter of said opening.

2. The combination with a mattress having an opening extending substantially vertically therethrough, of a frame supporting said mattress, a container adapted to be located in said opening, means supported on said frame and carrying said container, said means being operable to shift said container between a position in said opening and a position beneath said mattress, and a substantially liquid-proof, flexible, tubular sheath having one end snugly telescoped over and surrounding said container to move with said container, and having its other end secured to the lower surface of said mattress in masking relation to said opening.

3. The combination with a mattress having an opening extending substantially vertically therethrough, of a frame supporting said mattress, a container adapted to be located in said opening, means supported on said frame and carrying said container, said means being operable to shift said container between a position in said opening and a position beneath said mattress, and a substantially liquid-proof, flexible, tubular sheath having one end snugly telescoped over and surrounding said container to move with said container, and having at its other end an out-turned perimetral flange whose inner perimeter substantially conforms to the outer perimeter of the lower end of said opening, and cooperating separable fastening means arranged on said flange and on the lower surface of said mattress surrounding said opening.

4. The combination of claim 1 in which said means comprises a pair of arms journal mounted on parallel horizontal axes on said frame, said axes being vertically spaced from each other, pivot means connecting each of said arms to said container, said pivot means being located on parallel horizontal axes, lever means accessible to an occupant of said mattress, mounted on said frame, and operatively connected to swing said arms about their journal axes, and spring means resiliently urging said arms in a direction to hold said container in its uppermost position.

5. The combination of claim 1 in which said means comprises a pair of arms journal mounted on parallel horizontal axes on said frame, said axes being vertically spaced from each other, pivot means connecting each of said arms to said container, said pivot means being located on parallel horizontal axes, lever means accessible to an occupant of said mattress, mounted on said frame, and operatively connected to swing said arms about their journal axes, and spring means operatively connected to one of said arms and operable, when said lever means is free to move, to swing said arms to lift said container into said opening.

6. The combination with a mattress having an opening extending substantially vertically therethrough, of a frame supporting said mattress, a container adapted to be located in said opening, a pair of arms journal mounted on parallel horizontal axes on said frame, said axes being vertically spaced from each other, pivot means connecting each of said arms to said container, said pivot means being located on parallel horizontal axes, one of said arms being variable in effective length whereby said container may be rocked about the pivot means of the other of said arms, and operating means mounted on said frame and

accessible to an occupant of said mattress for swinging said arms about their journal axes to shift said container between a position within said opening and a position beneath said mattress.

7. The combination of claim 6 in which said one arm comprises two telescopically-associated elements, a spring confined between abutment surfaces provided on said respective elements, and means provided on said respective elements for limiting relative telescopic movement thereof.

8. The combination of claim 7 in which one of said elements is a tube slidably receiving the other of said elements, the abutment surfaces between which said spring is confined are provided, respectively, by a pin projecting into said tube and by the inner end of said other element, and said movement-limiting means comprises a further pin fixedly projecting into said tube and entering an axially-elongated trackway penetrating an external surface of said other element.

9. The combination of claim 7 in which said spring tends to increase the effective length of said one arm and in which said movement-limiting means prohibits extension of said one arm beyond a position in which said pivot means therefor is located in the vertical plane containing the pivot means for said other arm.

10. The combination of claim 1 in which said container comprises a holder and an inner, liquid-proof receptacle removably supported by said holder, and in which said inner receptacle is provided with a lip portion guarding the mouth of said inner receptacle and located, when said container is disposed in said opening, substantially in the plane of the upper surface of said mattress.

11. The combination of claim 10 in which said inner receptacle is further provided, in its region remote from the head end of said mattress, with an upstanding guard located, when said container is disposed in said opening, above the plane of said mattress' upper surface and presenting toward said head end of said mattress and toward said lip portion, a shell-like cavity.

12. For use with a bed frame, a bar of cylindrical section, means for supporting said bar substantially horizontally and transversely on such a frame, a sleeve mounted on said bar for oscillation about the axis of said bar, abutment means restraining said sleeve against axial movement relative to said bar, an arm mounted on said sleeve for movement therewith, a second arm, means providing a journal mounting for said second arm upon an axis parallel with, but vertically spaced from, said sleeve, a container, means providing vertically-spaced pivotal connections between said arms and said container on axes parallel with said sleeve, and means including a lever fixed to said sleeve for turning said sleeve about the axis of said bar.

13. The combination of claim 12 in which said last-named means comprises a second lever, means for mounting said second lever for oscillation about an axis fixed relative to such a bed frame, said second lever having a portion accessible to an occupant of such a bed frame and being operatively connected to said first named lever.

14. The combination of claim 13 including spring means tending to move said arms to swing said container into a position above such a frame, and latch means cooperable with said second lever to hold said container, against said tendency of said spring means, in a position below such a frame.

15. For use with a bed frame, a bar of cylindrical section, means for supporting said bar substantially horizontally and transversely on such a frame, a sleeve mounted on said bar for oscillation about the axis of said bar, abutment means restraining said sleeve against axial movement relative to said bar, an arm mounted on said sleeve for movement therewith, a second arm, means providing a journal mounting for said second arm upon an axis parallel with, but vertically spaced from, said sleeve, a container, means providing vertically-spaced pivotal connections between said arms and said container on axes parallel with said sleeve, and a coiled spring sleeved on said bar and having one end fixed relative to said bar and one end anchored on said sleeve.

16. The combination of claim 15 in which said abutment means includes a collar mounted on said bar and rotationally adjustable about the axis thereof, means for securing said collar to said bar in any selected position of rotational adjustment relative to said bar, and means anchoring the first-named end of said spring on said collar.

17. For use with a bed frame, a bar having a cylindrical section, means for supporting said bar substantially horizontally and transversely on such a frame, a sleeve supported upon said bar for oscillation about the axis of said section, an arm carried by said sleeve for movement therewith, bracket means fixed relative to the axis of said bar, a second arm pivotally supported on said bracket means for oscillation about an axis parallel with said bar axis, a container, means providing pivotal connections, upon mutually parallel axes parallel with said bar axis, between said container and said arms whereby said container is supported from said arms, a rock shaft journalled on an axis parallel with said bar axis, means providing an operative connection between said rock shaft and said sleeve, and a lever operatively connected to said rock shaft.

18. The combination of claim 17 including spring means acting to move and resiliently hold said sleeve to one position of rotational adjustment about said bar axis.

19. The combination of claim 18 including means fixed relative to the axis of said rock shaft and cooperative with said lever to hold the same against movement under the influence of said spring means.

20. The combination of claim 19 in which said spring means comprises a coiled spring sleeved on said bar and having one end anchored on said sleeve, a collar mounted on said bar for rotational adjustment about the axis of said cylindrical section, and means for securing said collar in any selected position of such adjustment, the other end of said spring being anchored on said collar.

DE MERLE E. ECKART.
JOHN R. ROSENLEAF.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
557,614	Schmitt	Apr. 7, 1896
1,037,392	Witt	Sept. 3, 1912
1,884,577	Comper	Oct. 25, 1932
2,384,325	Marsan	Sept. 4, 1945
2,443,905	Freund et al.	June 22, 1948