

July 26, 1960

D. L. SMITH

2,946,065

TOILET UNIT

Filed Jan. 28, 1958

2 Sheets-Sheet 1

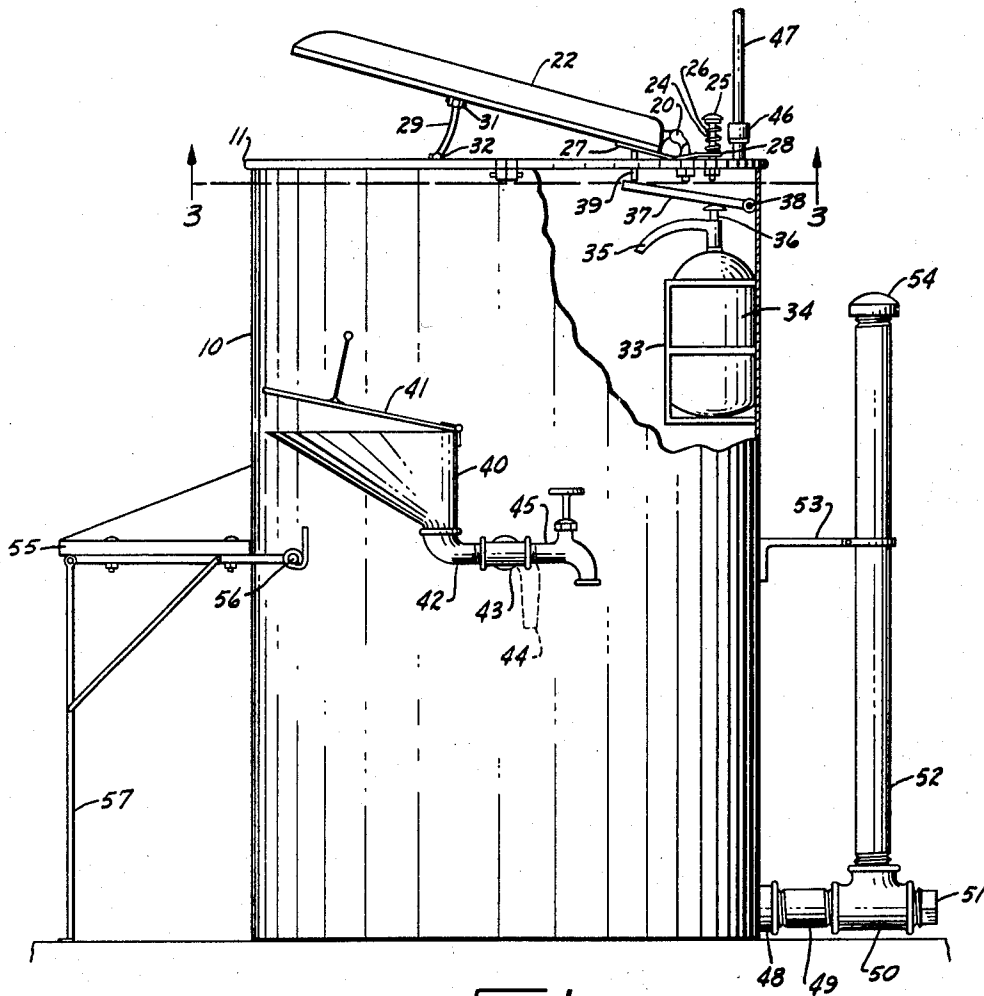


fig. 1.

INVENTOR.

DANIEL L. SMITH,

BY

Harold B. Hood
ATTORNEY.

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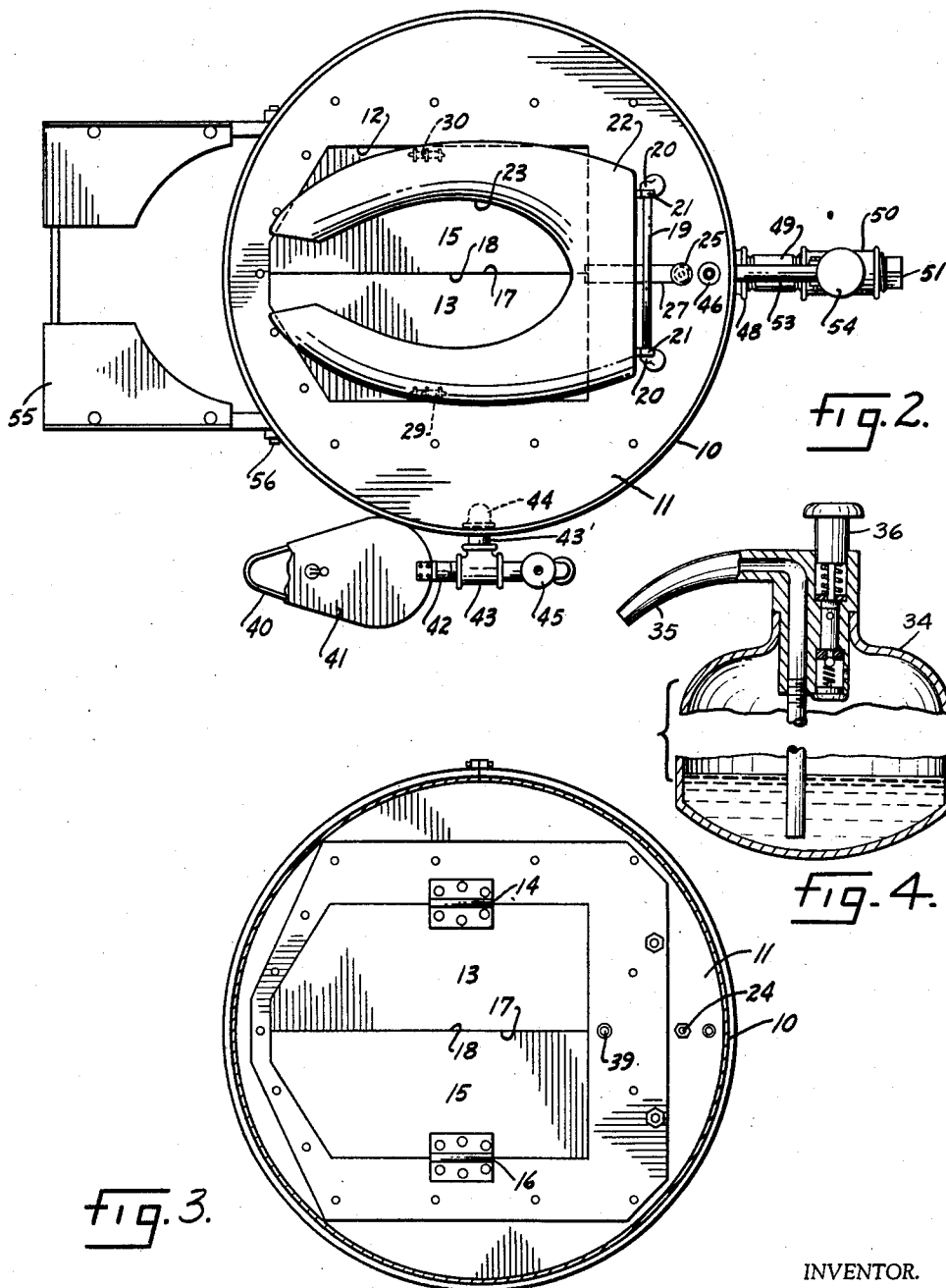
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INVENTOR.
DANIEL L. SMITH

BY

Harold B. Hood
ATTORNEY.

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Daniel L. Smith, Fort Myers, Fla., assignor to Daniel L. Smith, Fort Myers, Fla., as trustee

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3 Claims. (Cl. 4—115)

The present invention relates to a toilet unit, and is primarily concerned with the provision of a device, preferably portable or semi-portable, which may be readily installed to take care of toilet needs where it is not practical to install either a water-carried sewage system or a sanitary pit arrangement. Devices of the general character with which the present invention is concerned find their primary utility in roadside parks, picnic areas, multi-level building construction, labor gang areas, armed forces training areas and with traveling show units such as circuses, carnivals and the like.

The primary object of the invention is to provide a unit of the character above-described which will be simple and inexpensive in construction and yet capable of long-continued use, which will be so constructed and arranged as to provide for convenient periodical withdrawal of its contents, and which will be as sanitary as possible. A further object of the invention is to provide, in such a device, improved means for maintaining the major receptacle normally closed against the entrance and exit of insects and against the emanation of effluvia, improved means for automatically opening the receptacle for use, and improved means for periodically injecting a fluid such as a disinfectant or deodorant into the interior of the receptacle.

Still further objects of the invention will appear as the description proceeds.

To the accomplishment of the above and related objects, my invention may be embodied in the form 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 construction illustrated and described, so long as the scope of the appended claims is not violated.

Fig. 1 is a side elevation of a toilet unit constructed in accordance with the present invention, parts being broken away for clarity of illustration;

Fig. 2 is a plan view thereof;

Fig. 3 is a section taken substantially on the line 3—3 of Fig. 1 and looking in the direction of the arrows; and

Fig. 4 is a fragmental section, on an enlarged scale, of a detail.

Referring more particularly to the drawings, it will be seen that the unit of the present invention comprises a main receptacle 10, which may take any desired form but which may preferably be a converted oil drum, or the like, the open top of said receptacle being provided with a cover 11 suitably secured thereto in any desired fashion, said cover being provided with an aperture 12 therethrough. A first door 13 is hingedly supported, along one lateral edge of said aperture, by hinge means 14 which, in the preferred form of my invention, will be a conventional spring hinge, known to the hardware trade as a "screen door hinge," so constructed and arranged as resiliently to hold the door 13 in elevated, substantially horizontal position against the lower surface of the cover

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11 to close approximately one-half of the aperture 12. A mating door 15 is similarly supported by a similar hinge 16 which yieldably holds the door 15 in similar closing relationship to the other half of the aperture 12, the free edges 17 and 18 of the doors 13 and 15 meeting, as shown, when the doors are thus held in elevated positions, to provide a complete closure for the aperture 12.

Adjacent the rear end of the aperture 12, and on an axis generally perpendicular to the parallel axes of the hinges 14 and 16, a hinge bar 19 has its opposite ends supported in hinge brackets 20, 20 carried by, and upstanding from, the cover 11; and hinge elements 21, 21 project rearwardly from the rear end of a conventional toilet seat 22 and engage said bar 19 to provide a hinge mounting for said seat which is formed with an opening 23 which, in the use position of the seat, overlies the aperture 12.

At a point spaced to the rear of the seat hinge, an upstanding post 24 is secured to the cover 11, said post being formed with a head 25. A coiled spring 26 is sleeved on the post 24 and is confined between the post head 25 and the end 28 of a strap or lever 27 which is fixed to the rear end of the seat 22 and which projects beyond the seat hinge means into cooperative association with the post 24. The strap end 28 may be slotted or perforated for sliding engagement with the post 24; and the spring 26 is so designed as normally to hold the seat 22 in the partly elevated position illustrated in Fig. 1. Of course, the application of any substantial weight to the seat 22 will overcome the effect of the spring 26 to move the seat into use position.

Rigid fingers 29 and 30 depend from the lower surface of the seat 22 into cooperative association with the doors 13 and 15, respectively. The fingers 29 and 30 may be rigidly secured to the seat 22 and may be unconnected with the doors 13 and 15; or, as shown, said fingers may be hingedly engaged, as at 31 and 32, with the seat and with the respective doors, as illustrated. In either case, however, the fingers are so related to the doors 13 and 15 that, upon movement of the seat 22 into use position, both doors will be swung about their hinge axes, and against the tendency of the springs embodied in the hinges 14 and 16, to move their edges 17 and 18 downwardly to open the aperture 12. Of course, when the weight is removed from the seat 22, the spring 26 will return the seat to the position of Fig. 1 and the doors 13 and 15 will be automatically moved to closed position by the springs in the hinges 14 and 16 and/or by the spring 26.

Within the receptacle 10 there is suitably mounted a cage or socket 33 for the removable reception of a container 34 for disinfectant or deodorant fluid. The container is formed with a discharge spout 35 and is provided with pump means, of any desired, conventional construction, including a plunger 36 spring-loaded to its uppermost position and effective, upon depression against the tendency of its spring load, to discharge a quantity of the fluid in the container 34, through the spout 35 into the interior of the receptacle 10. A lever 37 has one end pivoted as at 38 to an interior wall of the receptacle 10, for oscillation about a horizontal axis, and extends inwardly in overlying, cooperative relation with the upper end of the plunger 36. Reciprocally penetrating the cover 11 is a pin 39 whose lower end rests upon, and is supported by, the distal end of the lever 37, and whose upper end is disposed in the descending path of a portion of the seat 22. The parts just described are so proportioned and arranged that, when the seat is moved to use position, the pin 39 is moved downwardly to swing the lever 37 in a counter clockwise direction to depress the plunger 36 to discharge a quantity of fluid from the

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container 34; and, when the weight is removed from the seat 22 and the seat is returned to its illustrated position, the plunger 36 will rise, under the influence of its spring load, to return the lever 37 and the pin 39 to their illustrated positions.

Preferably, I provide a separate urinal 40, with a hinged cover 41, outside the receptacle 10, the bottom of said urinal being connected, by an elbow 42, to a T 43. A short pipe 43' which fixedly penetrates the wall of the receptacle 10 is engaged with the stem of the T 43 to support the whole assembly, and connects with a delivery tube 44 within the container 10; and a faucet 45 is connected to the opposite branch of the T 43. Of course, when the faucet 45 is closed, liquid from the unit 40 will flow directly into the receptacle 10 through tube 44; but in some installations it may be desirable to connect a pipe or hose to the faucet 45, leading to a separate receptacle or to a point to which liquid may safely drain; and in such cases, the faucet 45 is opened and liquid will drain primarily from the unit 40 to such point.

The interior of the receptacle may be vented through a fitting 46 to which may be connected a vent pipe or hose 47; and, when desired, the pipe or hose 47 may be disconnected and may be replaced by a water hose for cleaning the interior of the receptacle 10. For such cleaning, the unit may be placed adjacent a sewer manhole and the contents may be flushed out through the fitting 48 which, through a pipe section 49, is connected to one arm of a T 50, the other arm of which is normally closed by a plug 51 which, for cleaning, may be replaced by a valve, a hose, or the like. Alternatively, the contents may be withdrawn to a tank truck provided with a suction pump, through a pipe 52 connected to the stem of the T 50, supported by a brace 53, and normally closed at its upper end by a cap 54 which may be removed for connection of the suction line from such a tank.

Depending upon the dimensions of the unit, it may sometimes be desirable to provide a folding step or platform structure 55 which, as shown, is pivotally mounted on the receptacle 10 as at 56 and may be provided with folding legs 57.

I claim as my invention:

1. In a device of the class described, a self-supporting receptacle having a fixed cover at its upper end, said cover being formed with an open mouth and the rear end of said mouth being significantly spaced from the adjacent rearward wall of said receptacle, a seat member having an opening therethrough hingedly mounted upon an axis located between the rear end of said open mouth and said rearward receptacle wall for movement into and out of overlying relation to said mouth, a pair of doors, respectively hinged adjacent the opposite edges of said mouth upon axes angularly related to, and below, the hinge axis of said seat, the edges of said doors remote from their hinge axes meeting, when elevated, to close said receptacle mouth, spring hinge means for each of said doors yieldably holding said doors in such elevated positions, means projecting from the lower surface of said seat and engageable with said doors to force the said remote edges of said doors downwardly, when said seat is moved into use position, to open said mouth, lever means secured to said seat and projecting therefrom beyond the hinge axis of said seat, a headed post stationarily upstanding from said cover at a point disposed rearwardly of said seat axis, said lever means straddling said post, spring means confined between the head of said post and said lever means and effective to hold said seat yieldably in an elevated position in which said projecting means permits full closure of said doors, a container for fluid mounted within said receptacle closely adjacent the rearward wall of said receptacle and embodying pump mechanism including a spring-loaded, upwardly-projecting plunger effective, upon depression against its spring load, to discharge a quantity of fluid from said container to the interior of said receptacle, a lever pivotally mounted

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upon an axis closely adjacent said receptacle rearward wall and projecting forwardly therefrom beyond the vertical plane including said seat hinge axis to overlie said plunger in operative engagement therewith, and reciprocating means actuated by movement of said seat, against the tendency of said spring means, into use position, to engage said lever adjacent the forward end thereof to swing said lever and to depress said plunger.

2. In a device of the class described, a receptacle having a fixed, apertured cover, a seat member having an opening therethrough, hinge means including elements upstanding from said cover adjacent an end of the aperture in said cover and elements projecting from said seat, away from the opening therethrough, for hingedly mounting said seat for movement between use position overlying said aperture and an elevated position, a single post fixedly upstanding from said cover at a point on the other side of said hinge means from said seat member, abutment means on said post spaced upwardly from said seat cover, a lever fixed to that portion of said seat member adjacent said hinge means and extending beyond said hinge means into sliding association with said post, a coiled spring sleeved on said post and confined between said lever and said abutment means to hold said seat member yieldably in an elevated position, a pair of doors supported from said cover beneath said aperture respectively adjacent opposite edges thereof, spring hinge means for each of said doors mounting the same for swinging movement about parallel axes, substantially perpendicular to the axis of said seat member hinge means, between elevated positions in which the free edges of said doors meet to close said aperture and depressed positions in which said aperture is open, said spring hinge means holding said doors yieldably in such elevated positions, and two fingers dependently secured to said seat member, one cooperable with each of said doors, said fingers being proportioned and arranged to engage said doors directly to force said doors, against the tendency of said spring hinge means, into such depressed positions when said seat member is moved into use position.

3. In a device of the class described, a receptacle having a fixed, apertured cover, a seat member having an opening therethrough, hinge means including elements upstanding from said cover adjacent an end of the aperture in said cover and elements projecting from said seat, away from the opening therethrough, for hingedly mounting said seat for movement between use position overlying said aperture and an elevated position, a single post fixedly upstanding from said cover at a point on the other side of said hinge means from said seat member, abutment means on said post spaced upwardly from said cover, a lever fixed to that portion of said seat member adjacent said hinge means and extending beyond said hinge means into sliding association with said post, a coiled spring sleeved on said post and confined between said lever and said abutment means to hold said seat member yieldably in an elevated position, a container for fluid mounted in said receptacle below said cover and rearwardly behind the rear end of said cover aperture, said container embodying pumping mechanism including a spring-loaded, upstanding plunger effective, upon depression against the tendency of its spring load, to eject a quantity of fluid from said container to the interior of said receptacle, a second lever pivotally mounted on a horizontal axis located directly adjacent the rear wall of said receptacle, said lever projecting forwardly from its axis beyond the vertical plane including the hinge axis of said seat and overlying said plunger in cooperative engagement therewith, and a pin reciprocally penetrating said cover at a point between said rear end of said cover aperture and said vertical plane, said pin being supported upon said second lever near the distal end of said lever, the upper end of said pin being disposed in the descending path of said seat member as the latter moves toward use position against the tendency of said coiled spring,

whereby said pin will move said lever to depress said
plunger as said seat member is so moved to use position.

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