

[54] **DEVICE FOR THE COLLECTION OF URINE**

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[52] **U.S. Cl.**..... **4/99, 4/1, 4/110,**
4/115, 128/275, 128/295

[51] **Int. Cl.**..... **E03d 13/00**

[58] **Field of Search** 4/1, 10, 99, 114,
4/102, 115, 110, 111; 128/2 F, 275, 295;
141/115; 137/152

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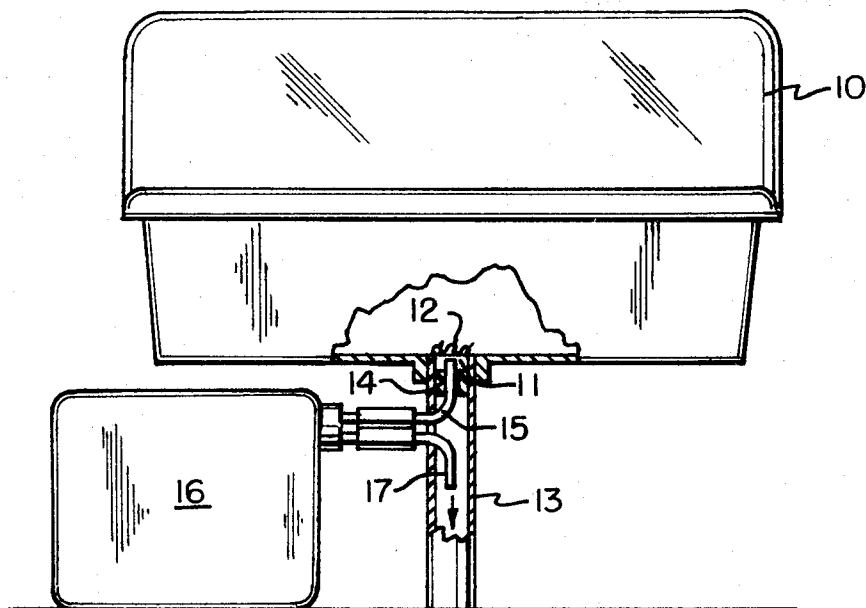
[57]

ABSTRACT

This invention relates to a device for the collection of urine for use with a urinary receptacle having drainage means for conveying the urine to a disposal site, said urine collection device comprising:

- a. stopper means for diverting the flow of urine from the drainage means of the urinary receptacle;
- b. storage means in communication with the stopper means for receiving the diverted flow of urine; and
- c. means for conveying overflow urine from the storage means to the disposal site.

4 Claims, 3 Drawing Figures



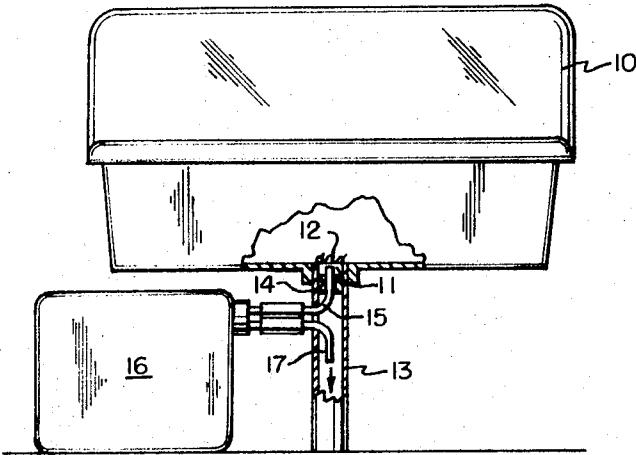


FIG. 1

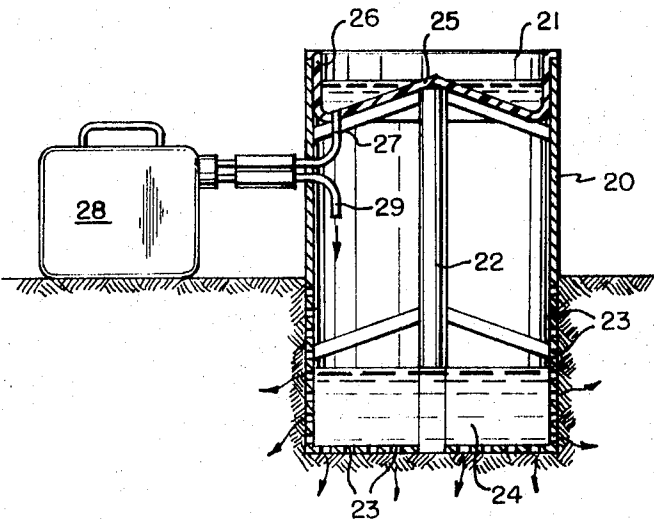


FIG. 2

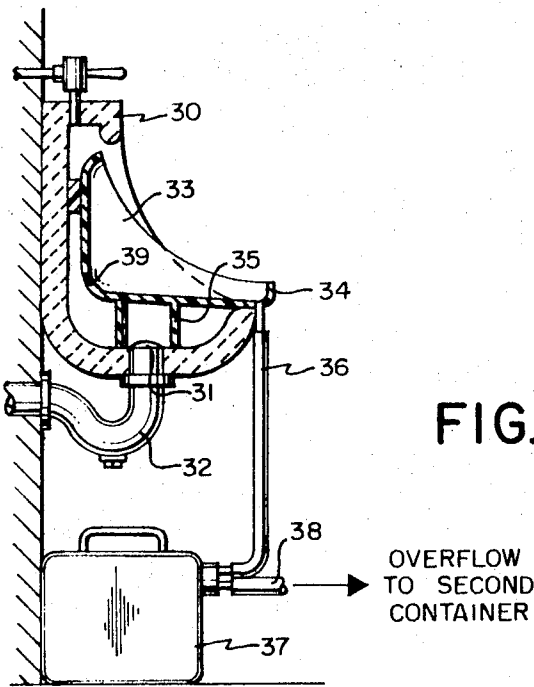


FIG. 3

DEVICE FOR THE COLLECTION OF URINE

BACKGROUND OF THE INVENTION

I. Field of the Invention

The present invention relates to devices for the collection of urine in bulk quantities.

II. Description of the Prior Art

Urine collection devices are known which are intended for the collection of a urinary specimen from a single individual. Such devices are inappropriate for use where large quantities of bulk urine are sought.

Bulk human male urine is an excellent and plentiful source of urokinase, a thrombolytic proteolytic enzyme activator which stimulates the production in the blood of the clot-dissolving proteolytic enzyme, plasmin. Urokinase is present in human male urine only in trace amounts and it is therefore necessary to process large quantities of urine to yield this enzyme in useful amounts.

Military bases, for example, are excellent sources for human male urine because there are large numbers of healthy men on rigid schedules thus making the urine collection scheduling more practical. Heretofore, however, no convenient means for obtaining bulk quantities of urine has been available.

SUMMARY OF THE INVENTION

The urine collection device of the present invention permits collection and storage of large quantities of urine and especially, human male urine which can be processed for the urokinase content thereof.

The urine collection device of this invention is adaptable for use with any number of urinary receptacles now in use, as for example, the latrine urinary trough and barrel urinary latrine widely used in the military and known and conventional individual urinals.

Broadly, the present invention relates to a device for the collection of urine for use with a urinary receptacle having drainage means for conveying the urine to a disposal site, said urine collection device comprising:

- a. stopper means for diverting the flow of urine from the drainage means of the urinary receptacle;
- b. storage means in communication with the stopper means for receiving the diverted flow of urine; and
- c. means for conveying overflow urine from the storage means to the disposal site.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 illustrates a front view partially in cross-sections of an embodiment of this invention adapted for use with the military urinary latrine trough;

FIG. 2 illustrates a cross-sectional view of an embodiment of this invention adapted for use with the military barrel urinary latrine;

FIG. 3 illustrates a cross-sectional view of an embodiment of this invention adapted for use with a urinal of the individual type.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, 10 designates generally a urinary trough having a drainage port 11 covered with coarse filter screen 12 and a drainage pipe 13 for conveying the urine to a disposal site. A rubber stopper 14 is disposed within drainage pipe 13 a short distance below screen 12. A tube 15 is disposed at one end throughout the vertical length of stopper 14 and at the other end

communicates with a storage can 16 which can contain a small quantity of a preservative for the urine such as chloroform. Another tube 17 leads from the storage can to drainage pipe 13.

In operation, rubber stopper 14 diverts the flow of urine from drainage pipe 13 and tube 15 conveys the diverted urine to the storage can 16. When the storage can has become full to capacity, overflow urine is conveyed through tube 17 to drainage pipe 13. When the urine thus collected is to be processed for the urokinase content thereof, it is advantageous to use urine which has not aged more than 24 hours.

Referring to FIG. 2, 20 designates generally a barrel urinary latrine situated partially below the surface of the ground, the barrel having a wire screen cover 21, standpipe 22, drainage holes 23, and a creosote water and overflow urine mixture 24 at the bottom portion of the barrel. A conical disc 25 with a wall 26 is disposed within the top of the barrel. At the base of the cone is a tube 27 with the further end thereof communicating with storage can 28. Another tube 29 leads from the storage can to the interior of the barrel.

In operation, conical disc 25 inserted within the barrel prevents the flow of urine to the liquid mixture 24 at the base of the barrel diverting the flow of urine through tube 27 to storage can 28. Overflow urine is conveyed from the storage can to the interior of the barrel where the overflow is eventually disposed of by drainage through the ground.

Referring to FIG. 3, 30 designates generally a urinal of the individual type having a drain filter 31 and drainage pipe 32. An insert 33 having an outlet 39 for the overflow of urine which can be constructed of plastic or any other suitable material and having a configuration approximating the interior shape of the urinal is disposed within the urinal with a portion of the insert 34 extending a short distance beyond the edge of the urinal. Base 35 supports the insert a short distance from the bottom of the urinal. A tube 36 depending from extended portion 34 of the insert communicates with storage can 37. Another tube 38 conveys overflow urine from the storage can to another storage can.

In operation, insert 33 prevents the flow of urine to the drainage pipe 32 of the urinal diverting the flow of urine to tube 36 and into storage can 37. Tube 38 conveys overflow urine to another storage can or to a disposal site as the case may be.

I claim:

1. A device for the collection of urine for use with a urinary receptacle having drainage means for conveying the urine to a disposal site, said urine collection device comprising:

- a. stopper means for diverting the flow of urine from the drainage means of the urinary receptacle;
- b. storage means in communication with the stopper means for receiving the diverted flow of urine; and
- c. means for conveying overflow urine from the storage means to the disposal site.

2. The device of claim 1 wherein the stopper means comprises a rubber stopper having a tube therethrough, disposed within the drainage pipe of a urinal receptacle for diverting the flow of urine from said drainage pipe to a storage can.

3. The device of claim 1 wherein the stopper means comprises a conical disc disposed within the top of a barrel urinal for diverting the flow of urine into the bottom of the barrel, said conical disc having a tube at the

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base thereof for conveying the diverted urine to a storage can.

4. The device of claim 1 wherein the stopper means comprises an insert disposed within the interior of an individual urinal for diverting the flow of urine from the

drainage pipe thereof with a portion of said insert extending beyond the edge of the urinal and a tube depending from said extended portion for conveying the diverted urine to a storage can.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,745,592

Dated July 17, 1973

Inventor(s) Leo J. Novak

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover sheet insert -- [73] Assignee: Rand Laboratories, Inc. --.

Signed and sealed this 1st day of January 1974.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

RENE D. TEGTMEYER
Acting Commissioner of Patents