

### [54] URINE COLLECTION DEVICE

[75] Inventor: Leonard Seeley, Palatine, Ill.

[73] Assignee: C. R. Bard, Inc., Murray Hill, N.J.

[22] Filed: Mar. 2, 1973

[21] Appl. No.: 337,606

3,711,871 1/1973 Sherin..... 4/110  
3,754,287 8/1973 Taylor..... 4/1  
3,777,739 12/1973 Raitto..... 4/110

Primary Examiner—Billy J. Wilhite

Assistant Examiner—Robert Pous

Attorney, Agent, or Firm—C. E. Martine, Jr.

[52] U.S. Cl. .... 4/110

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

[58] Field of Search..... 4/1, 99, 110; 128/2 F

### [56] References Cited

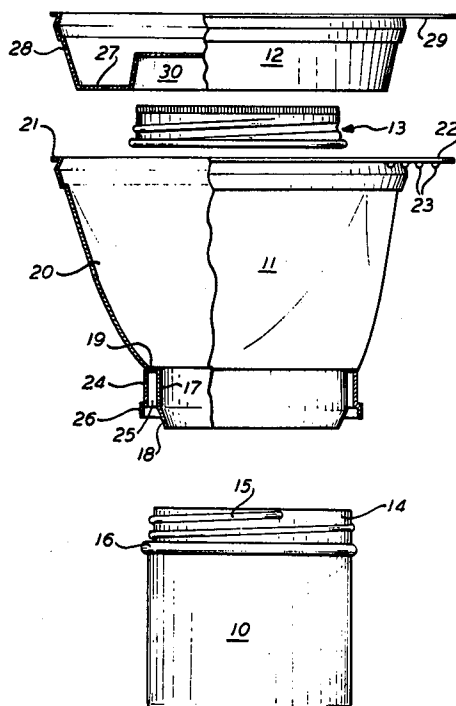
#### UNITED STATES PATENTS

3,033,222	5/1962	Connolly.....	4/110 X
3,177,500	4/1965	Bauman.....	4/110
3,335,714	8/1967	Giesy.....	4/110 X
3,459,174	8/1969	Walker.....	128/2 F
3,579,652	5/1971	Ericson.....	4/110
3,583,388	6/1971	Hovick.....	128/2 F
3,625,064	12/1971	Hinman, Jr. et al.....	4/110
3,680,543	8/1972	Cox.....	4/110

### [57] ABSTRACT

A collection device for obtaining relatively uncontaminated specimens of urine from a human female, which device comprises a liquid container, a funnel detachably secured to the container, a removable lid fitted tightly on the funnel, and a screw-on cap being mounted on the removable lid in a position to be applied to the container, after use, without violation of sterility. The removable lid closes the chamber constituted by the interior of the container and funnel, maintaining sterility until the lid is removed prior to use.

3 Claims, 5 Drawing Figures



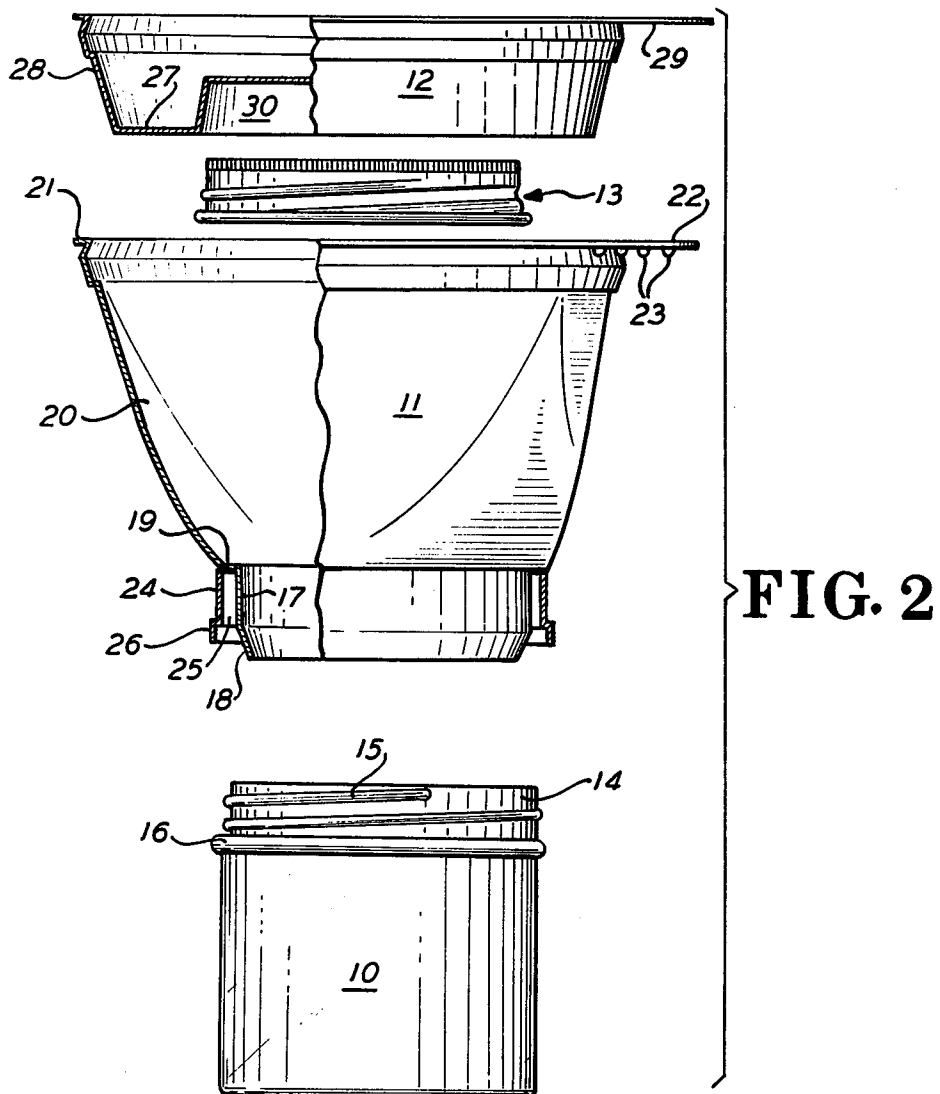
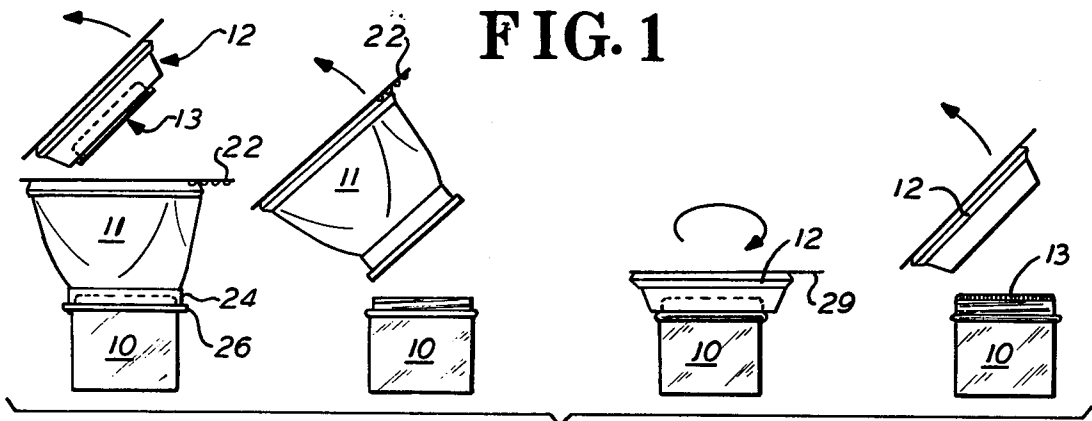


FIG. 3

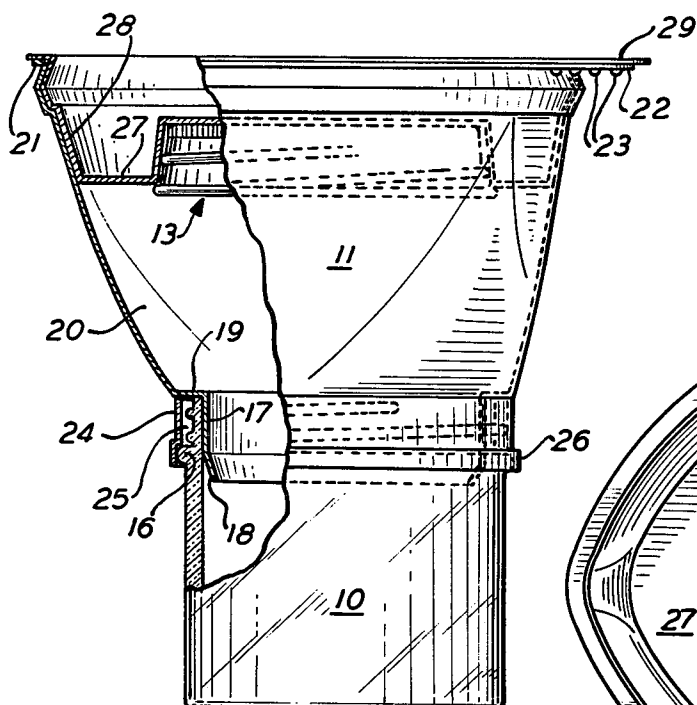


FIG. 4

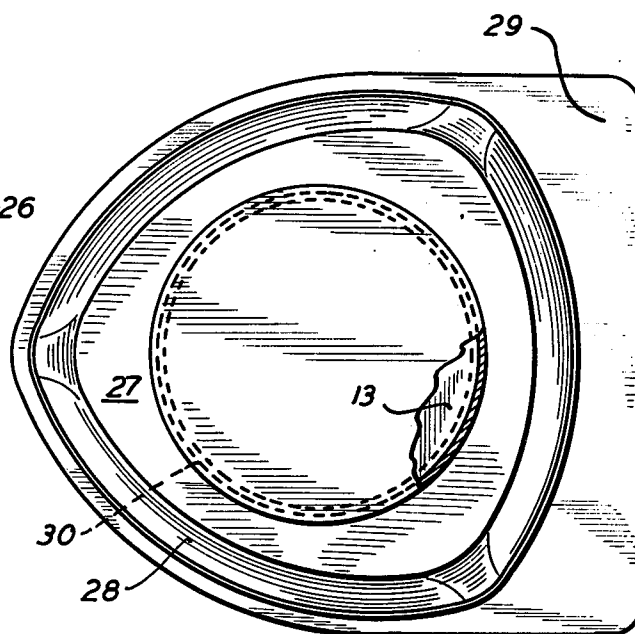
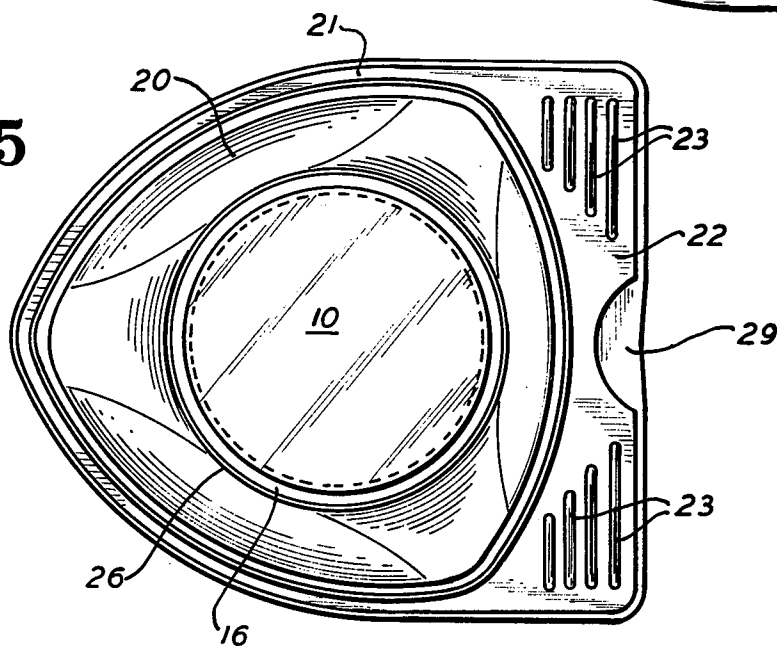


FIG. 5



## URINE COLLECTION DEVICE

This invention relates to a device for collecting specimens of urine from female patients, and more particularly for collecting specimens of urine substantially free from external contamination, and truly representing the condition of the main body of the urine as it actually exists in the bladder.

The initial stream, at the beginning of the voiding operation, carries with it much of the accumulated debris and mucous collected in the urethra since the previous voiding, and therefore, either by itself or mixed with the rest of the urine, does not constitute a true sample of the condition of the main body of the urine in the bladder. The initial portion of the discharge should therefore, be separated from the "mid-stream" portion before collection of a sample for examination and analysis.

A principal object of the invention is to provide means which can be used conveniently to collect a urine sample only after the initial — presumably contaminated — portion of the flow has been discharged and disposed of. A further object is to provide a device having two main parts, a container and a funnel, which are detachably secured together to form a continuous interior chamber, and tight-fitting lid for the funnel, which lid carries on its under side a cap, such as a screw cap, which can be manipulated without handling to close the top of the container after a sample has been collected and the funnel removed from the container. So long as the lid is in place on the container-funnel assembly, the chamber within can be maintained in sterile condition. The cap, being within the chamber, is also kept sterile.

Patents dealing with "mid-stream" urine collection include Geisy U.S. Pat. No. 3,335,714; Hovick U.S. Pat. No. 3,583,388; Hinman U.S. Pat. No. 3,625,064; Walker U.S. Pat. No. 3,459,174; and Ericson U.S. Pat. No. 3,579,652. And see also Bauman U.S. Pat. No. 3,177,500 for a simple one-piece collecting device. The present device represents, more specifically, an improvement in devices of the type shown in Sherin U.S. Pat. No. 3,711,871.

A practical embodiment of the invention is shown in the accompanying drawings, wherein:

FIG. 1 represents, in side elevation, a series of views of the device at various stages of its intended use;

FIG. 2 represents, in side elevation with parts broken away to show vertical sections, an exploded view of the several parts constituting the device;

FIG. 3 represents, in side elevation with parts broken away to show vertical sections, a view of the device as assembled;

FIG. 4 represents a top plan view of the assembled device, with a part broken away to show a horizontal section; and

FIG. 5 represents a bottom plan view of the assembled device.

Referring to the drawings, the collection device comprises a container 10, in the form of a cylindrical jar, a funnel 11, a lid 12 and a container cap 13.

The container 10 is provided with a lip 14, screw threaded as indicated at 15 and defined by the annular bead 16, the material being suitably a molded plastic.

The funnel 11 has a cylindrical base 17 with an inwardly slanted lower edge 18, a narrow flat annular shoulder 19, a body portion 20 which flares upward

and outward to a somewhat rounded three-sided upper rim and an integrally formed flat flange 21, which projects far enough beyond the rim, along one of the sides, to constitute a handle 22.

Opposite ends of the handle may be provided with ridges 23 for increased security in handling. At the bottom of the funnel a cylindrical collar 24 is bonded to the outer edge of the shoulder 19 and extends downwardly, parallel to and spaced from the base 17, to form an annular slot 25 adapted to receive the lip 14 of the container which is frictionally engaged by the base 17 and/or the collar 24. Increased precision and security is attained by shaping the lower edge of the collar 24 to engage the bead 16, as indicated at 26.

The lid 12 has a flat base 27, side walls 28 shaped to have a snap fit within the upper portion of the funnel, and a wing 29 shaped to overlie the handle 22 and extend laterally beyond it. The base 27 is provided with a circular recess 30 in which the container cap 13 can be frictionally held.

When the parts are assembled as shown in FIGS. 3, 4 and 5 it will be seen that the lip of the container is protected internally and externally by its enclosure within the slot 25; the cap 13 is within the funnel, and the interior of the container and funnel constitute a tightly closed chamber adapted to maintain sterility up to the moment of use.

In use, as shown in FIG. 1, the lid 12 is removed (by grasping the wing 29) and is laid upside down on any surface, the funnel is grasped by either or both of the ridged corners of the handle and the funnel and container are located to receive a flow of urine, preferably after the initial flow has rinsed away unwanted matter. After collection of an adequate sample, the funnel is removed from the container and discarded, the lid is picked up and, using the lid as a handle, the untouched sterile cap is screwed onto the container, the lid then being discarded.

Since the funnel and lid may conveniently be made of light inexpensive plastic material, vacuum formed to the desired shape (except for the collar 24), this very convenient device is economical to use and facilitates obtaining clean specimens, securely enclosed, with minimal danger of spilling.

It will be understood that various changes may be made in the form, construction and arrangement of the several parts without departing from the spirit and scope of the invention and hence I do not intend to be limited to the details shown or described herein except as the same are included in the claims or may be required by disclosures of the prior art.

What I claim is:

1. A urine collection device comprising a liquid container in the form of a cylindrical jar having an open top, the lip portion adjacent the open top being finished to receive a closure, a funnel having a base adapted to engage said lip portion and an upper opening, the area of said upper opening being greater than that of the opening in the top of the jar, a rigid lip covering said upper opening and removably engaging said funnel, said lid having on its under side means for removably holding a container cap, and a container cap removably held in said holding means, said container cap having a diameter to fit the lip portion of the cylindrical jar but of a diameter less than that of the upper opening in said funnel, said lid providing means for manually transfer-

3

4

ring the cap into engagement with the lip of the container without manual contact with the cap.

2. A urine collection device according to claim 1 wherein the interior of the container and of the funnel constitute a chamber capable of being sterilized and

5

closed to maintain sterility until the device is used.

3. A urine collection device according to claim 1 wherein the lip portion of the container has a threaded outside finish and the cap is correspondingly threaded.

\* \* \* \* \*

10

15

20

25

30

35

40

45

50

55

60

65