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References Cited

UNITED STATES PATENTS

411,793	10/1889	Eggers.....	128/252
2,213,057	8/1940	Sponsel.....	128/227X
2,936,757	5/1960	Trace.....	128/276
3,263,848	8/1966	Zackheim.....	215/11

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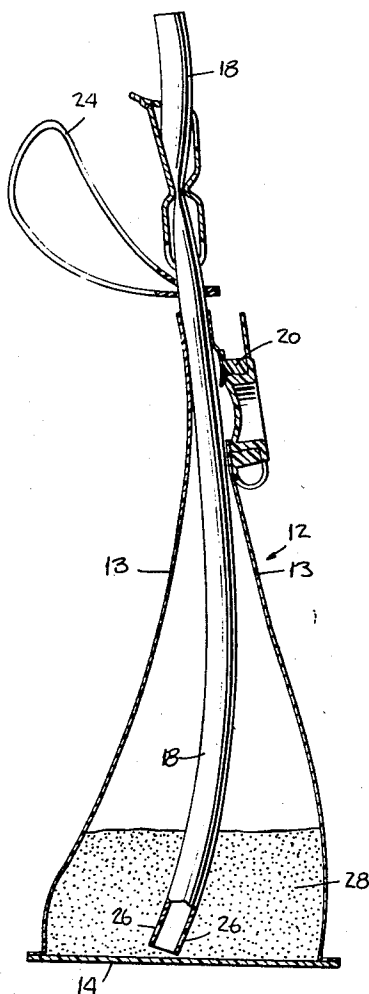
[54] **APPARATUS FOR GIVING UPPER**
GASTROINTESTINAL RADIOLOGICAL
EXAMINATION
7 Claims, 3 Drawing Figs.

[52] U.S. Cl. **128/222**

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223, 224, 252, 226, 227, 275, 251, 214, 294, 295,
276, (Bag Digest); 215/11; 150/2.1

ABSTRACT: A pouch adapted to hold a barium sulfate suspension which can be drunk from the pouch through a flexible straw that extends from the interior of the pouch to out the top of the pouch. Except for the straw opening, the pouch, when in use, is closed. The pouch has collapsible sides and a stiff bottom to permit alternate uses of the pouch. The stiff bottom permits the pouch to stand up or to be held without compression of the interior, which compression would tend to force the contents out of the straw. Alternatively, the collapsible sides of the pouch permit the administrator of the upper gastrointestinal examination to force the contents of the pouch out the straw into the mouth of a patient who because of age or incapacity may be unable to drink from the straw.



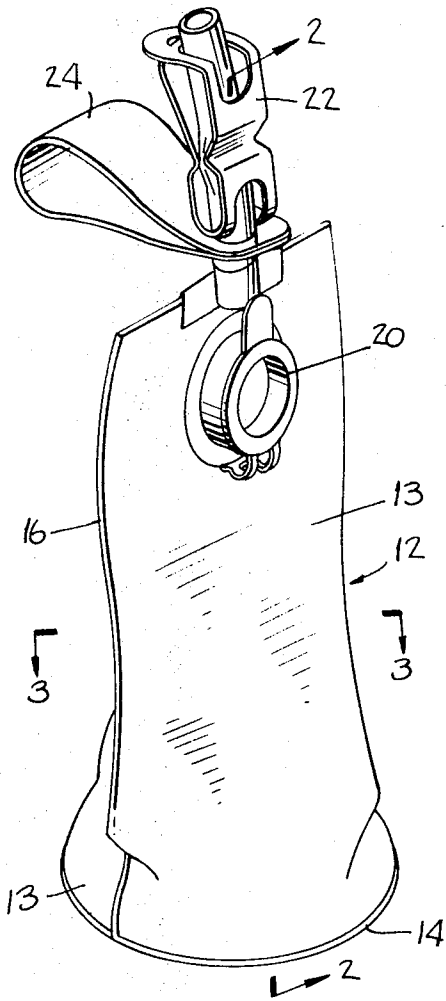


Fig. 1.

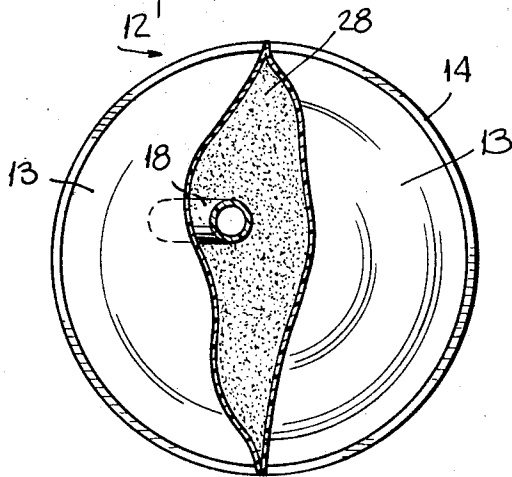


Fig. 2.

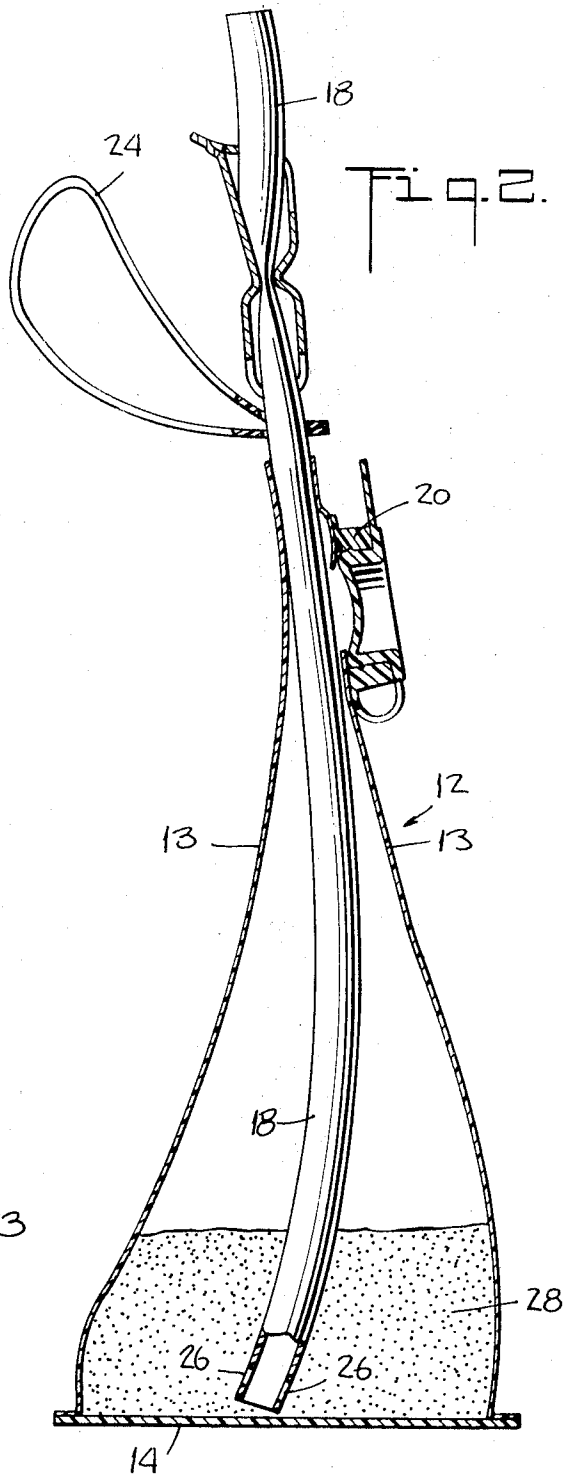


Fig. 3.

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APPARATUS FOR GIVING UPPER GASTROINTESTINAL RADIOLOGICAL EXAMINATION

This invention relates in general to a means for administering barium sulfate to a patient so that an upper gastrointestinal radiological examination can be made and more particularly to a self-contained pouch and straw combination for holding the barium sulfate suspension and for facilitating the drinking or, if necessary, the more forceful administration of the barium sulfate suspension by or to the patient.

BACKGROUND OF THE INVENTION

Previously known techniques for administering upper gastrointestinal (hereinafter upper GI) radiological examinations involve having a patient drink a suspension in water of a radiopaque substance such as barium sulfate. The X-ray examination was made while the suspension was being swallowed and thus the patient had to feed himself (or be fed by an assistant) in a number of different positions from the cup containing the mixture.

This technique posed a number of problems. The use of the cup presents sanitation problems which require time and attention to make sure that infection is not transmitted from person to person. The preparation of the mixture results in density variations unless very careful attention is paid to the quantity of material used. A very important problem is that the contents of the cup tends to spill particularly when infants or feeble persons are the patients involved. To avoid spilling the contents, care and time must be expended in administering the tests involved. It must be kept in mind that this problem of spilling is quite acute because part of the examination consists of the patient drinking the barium sulfate while lying in a supine position or in a prone position. Particular difficulty arises when (as, for example, in the dark) the patient is unable to follow instructions concerning when he is to drink the barium sulfate suspension. The forced administration of the drink from a cup is not a particularly easy matter to administer.

Accordingly, it is a major purpose of this invention to provide a spill proof container for administering the required barium sulfate mixture in making an upper GI radiological examination.

It is a further important purpose of this invention to provide such a spill proof container as can be used either by the patient himself or by someone administering the radiological tests.

It is a still further purpose of this invention to provide such a container as can be used with infants and feeble persons so that the person administering the test can control and determine the intake of the barium sulfate.

It is a further purpose of this invention to provide all the above objects and purposes in a simple, inexpensive, disposable and sanitary device.

BRIEF DESCRIPTION OF THE INVENTION

Briefly, one embodiment of this invention includes a pouch having collapsible sides and a stiff bottom so that the pouch can be made to stand. The pouch contains a required charge of barium sulfate and has an openable sealed cap near the top thereof so that water can be added to the pouch and the requisite suspension created. When the cap is closed, the pouch is completely sealed except for a straw that extends out the top of the pouch. This straw preferably extends to the bottom of the pouch so that the patient can ingest the entire contents of the pouch. The straw is made of a flexible plastic material and a clamp at the upper end of the straw makes it possible to close the straw when desired. A finger hold strap near the top of the pouch makes it convenient for a patient to hold on to the pouch in any one of a number of positions and drink the contents of the pouch through the straw.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and purposes of this invention will become apparent from the following detailed description and drawings in which:

FIG. 1 is a perspective view of an embodiment of this invention;

FIG. 2 is a longitudinal cross-sectional view of the FIG. 1 device, taken along the plane 2-2 of FIG. 1, in which the straw, except for its bottom portion, is shown in relief throughout; and

FIG. 3 is a transverse cross-sectional view of the FIG. 1 embodiment taken along the plane 3-3 of FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the drawings, the three drawings are of the same embodiment. As may be seen therein, the device of this invention includes a pouch 12 which is generally flexible except for its base 14. The walls 13 of the pouch 12 are made of a collapsible plastic material whereas the base 14 of the pouch 12 is made of a stiff plastic material. The walls 13 of the pouch 12 are sealed to the base 14. The walls 13 may conveniently be made of two sheets of collapsible plastic which are sealed together along their edges 16. The sealed top edge accommodates, and is sealed to, a flexible plastic straw 18. The straw 18 preferably extends from very close to the bottom 14 of the pouch 12 upward and out the top of the pouch 12 so that a patient can drink the contents of the pouch 12 through the straw 18.

A plastic cap 20 is sealed to the upper portion of one of the walls 13 of the pouch 12 so that, when the cap 20 is open, water can be poured through the opening in the wall of the pouch 12 to mix with the charge of barium sulfate that is placed in the pouch 12.

A clamp 22, which can be operated by finger pressure, is clipped over the top of the straw 18 to prevent contamination from coming through the straw 18 into the inside of the pouch 12 and also to prevent the dry barium sulfate in the pouch 12 from falling out of the straw 18. Furthermore, in use, the clamp 22 is useful in making it possible for a patient to take the straw 18 into his mouth, place the pouch 12 in position and yet refrain from drinking any of the contents of the pouch 12 until the radiologist is ready. When the radiologist is ready, slight finger pressure on the clamp 22 will open the straw 18 and the drinking of the barium sulfate mixture or suspension can proceed.

A flexible strap 24 is looped around at the top of the pouch 12. The dimensions of the loop 24 are such that is convenient for a patient to hook one or two fingers through the loop 24 and thereby hold the pouch 12. Holding the pouch 12 in this fashion is important so that the patient does not unnecessarily squeeze the pouch 12 and thereby force the contents of the pouch 12 through a straw 18 when undesired or at a faster rate than is desired. This flexible loop 24 is particularly useful when the patient is in either a prone position or a supine position, since he may then rest the pouch on his arm or on a table and manipulate the position of the pouch by means of the flexible loop 24.

Two openings 26 are shown at the base of the straw 18. These openings 26 tend to avoid clogging of the straw 18. The dry barium sulfate is not dissolved in water and there is a tendency for it to become somewhat lumpy when the water is added. The openings 26 provide an alternate entry into the straw 18 in case a clump of barium sulfate clogs the main opening of the straw 18. Alternatively, the straw 18 can be beveled at its lower end so as to minimize the risk of such clogging.

As explained above in the preferred embodiment, a charge of the requisite barium sulfate is included in the pouch 12 and the water is added by the person administering the radiological tests to form a barium sulfate suspension 28. The flexibility of the walls 13 is important so that the walls 13 of the pouch can be manually flexed in a fashion which will facilitate the mixing of the dry barium sulfate and the added water. It is preferable that the barium sulfate employed be very fine and free of larger agglomerates of unwetted barium sulfate so that the proper mixing will occur. A usable barium sulfate com-

position is described in U.S. Pat. No. 3,236,735. This barium sulfate composition can be readily mixed without requiring prior mechanical agitation. The basic technique of employing manual agitation through the manipulation of the collapsible walls of the container in order to obtain an appropriate mixture of the barium sulfate in water is described in U.S. Pat. No. 3,177,871. It is further important that the walls 13 be collapsible so that as the patient drinks the suspension 28, the walls 13 will collapse inward to avoid forming a partial vacuum in the pouch 12.

Although this invention has been described in connection with one preferred embodiment, it should be obvious that certain changes can be made in the invention as described without departing from the spirit and scope of the invention.

For example, although it is preferred that the device be prepared with an accurately predetermined charge of barium sulfate therein, it would be possible to ship these devices without any barium sulfate and the mixture could be made in the office of a radiologist and then added to the pouch through the cap 20.

We claim:

1. A device adapted for the administration of upper gastrointestinal radiological examination comprising:

a pouch having first and second collapsible side walls and a stiff flat base, the upstanding edges of said first sidewall being sealed to only the upstanding edges of said second sidewall, the base edge of each of said sidewalls being sealed to only said stiff flat base;

a flexible straw extending out the top of said pouch and in communication with the interior of said pouch; and said pouch being sealed to said straw, said pouch being further completely closed except for access to the interior thereof through said straw.

2. The device of claim 1 wherein said flexible straw extends from near the interior base of said pouch, through the length of said pouch and out the top of said pouch.

3. The device of claim 2 further characterized by: the upper portion of a sidewall of said pouch having an

opening therethrough; and

an openable cap sealed to said opening, said cap when closed maintaining the interior of said pouch closed except through said straw, said cap when opened permitting access to the interior of said pouch for the insertion of water, barium sulfate mixture or the like.

4. The device of claim 2 further characterized by:

a clamp at the upper end of said flexible straw outside of said pouch, said clamp being in a normally closed position to close off the upper end of said straw, said clamp being adapted to be opened by finger pressure to open the upper end of said straw.

5. The device of claim 2 further characterized by:

a flexible looped strap connected near the upper end of said pouch to permit finger hold and support of said pouch.

6. The device of claim 2 wherein said straw has auxiliary openings near the bottom thereof to provide multiple opening communication between said straw and the contents of said pouch.

7. The device of claim 2 further characterized by:

the upper sidewall of said pouch having an opening therethrough;

an openable cap sealed to said opening, said cap when closed maintaining the interior of said pouch closed except through said straw, said cap when opened permitting access to the interior of said pouch for the insertion of water, barium sulfate mixture or the like;

a clamp at the upper end of said flexible straw outside of said pouch, said clamp being in a normally closed position to close off the upper end of said straw, said clamp being adapted to be opened by finger pressure to open the upper end of said straw;

a flexible looped strap connected near the upper end of said pouch to permit finger hold and support of said pouch; and

said straw having auxiliary openings near the bottom thereof to provide multiple opening communication between said straw and the contents of said pouch.