

Dec. 15, 1970

D. H. E. LAUMANN
DISPOSABLE BEDPAN LINER

3,546,716

Filed June 19, 1968

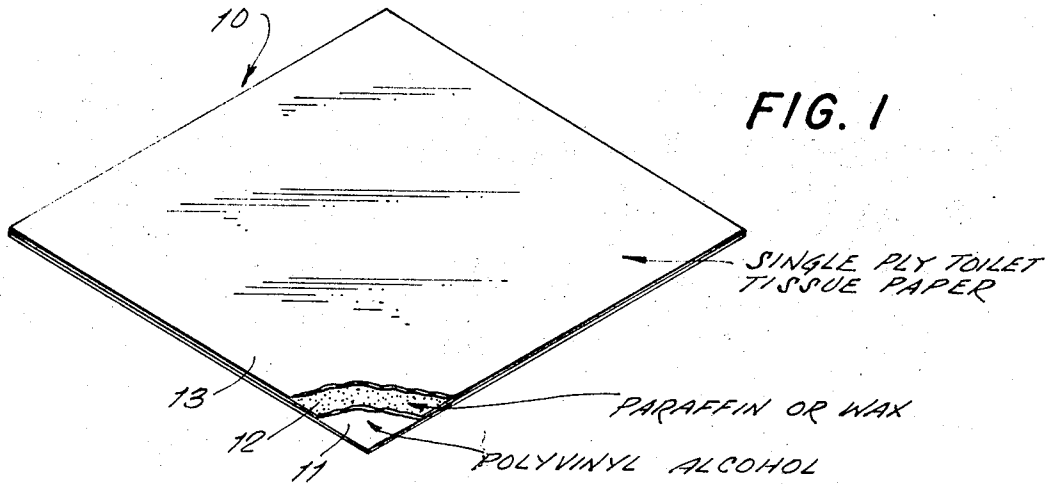


FIG. 2

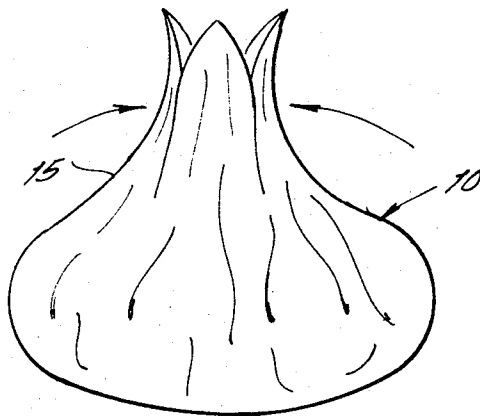
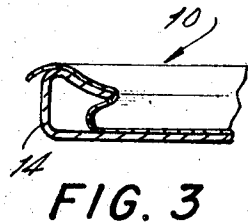
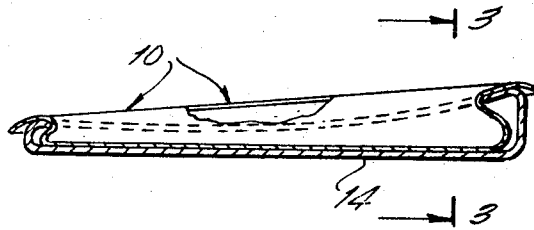


FIG. 4

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3,546,716
DISPOSABLE BEDPAN LINER
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 Filed June 19, 1968, Ser. No. 738,203
 Int. Cl. A61g 9/00

U.S. Cl. 4-112

5 Claims

ABSTRACT OF THE DISCLOSURE

A disposable bedpan liner is provided which has a cold water-disintegratable or -soluble base film such as polyvinyl alcohol having a thin continuous water insoluble coating thereon, which may be made of microwax or paraffin modified for adhesion and flexibility with about 20 to 40% ethyl vinyl acetate polyethylene or other hydrophobic materials such as silicates, silicones or cellulose derivatives such as ethyl cellulose or nitro-cellulose and absorbent tissue paper (1-ply toilet tissue) on and adhered to the coating. The liner is very thin but of adequate tensile strength and resistance to human excrement but disintegrates in approximately five to ten seconds in contact with water when deposited in a toilet bowl or disposal system. Other paraffins and coatings of still other water-insoluble materials may be substituted which have the temporary water resistant properties required.

The present invention relates to a disposable bedpan liner which is of 3-ply or optionally of 4-ply nature and which is intended to disintegrate in about five to ten seconds in contact with water when deposited in a toilet bowl and flushed, thereby greatly increasing convenience and cutting down on cleaning and sanitizing operations in a hospital or in the home.

The invention is illustrated in the accompanying drawing in which:

FIG. 1 is a perspective view of a liner in accordance with the invention having portions broken away to illustrate the 3-ply construction;

FIG. 2 is a cross-sectional view taken through a bedpan and showing the liner in position therein;

FIG. 3 is a fragmentary sectional view taken on line 3-3 of FIG. 2 and showing the liner in position for use; and

FIG. 4 is an elevational view of the liner and contents as removed from the bedpan ready for disposal.

It will be clear from FIG. 1 of the drawing that the preferred and presently best known form of bedpan liner 10 of the present invention is 3-ply, i.e., is composed of three layers, namely a strong base film 11 of a water-disintegratable or -soluble polyvinyl alcohol (PVA) polymerization product, a thin water-insoluble coating 12 (in which wax, preferably modified for adhesion and flexibility with 20 to 40% ethyl vinyl acetate polyethylene) on one side of base member 11 and only thick enough to provide a continuous water repellent or resistant surface or other hydrophobic materials such as silicates, silicones or cellulose derivatives such as ethyl cellulose or nitro-cellulose, and on the coating 12 there is disposed in adhered condition a single ply tissue paper 13 of toilet tissue grade. While the liner may be made in various thicknesses and sizes and shapes, it has been found that a rectangular, preferably a square shape, about twenty inches long on each side is best, as this, when used in conjunction with a standard bedpan designated at 14, leaves the four corners of the liner projecting beyond the boundaries of the bedpan and provides simple and convenient means for a nurse or attendant to pick up the liner with its contents deposited thereon after use by the

patient and so that the liner may be gathered into a shape approximating that shown at 15 in FIG. 4. The thus gathered liner, with its contents, is then readily removed from the bedpan which has been carried to a toilet or flush disposal system and after depositing the liner and contents in the toilet for flushing, the bedpan requires a minimum of cleaning or sanitizing. The bedpan with the liner and its contents of excrement (urine and feces) is carried to the place where it is to be disposed of, which is usually a toilet bowl and upon contact of the liner and its contents with the water in the toilet bowl, the polyvinyl alcohol or other cold water-soluble base film rapidly begins to disintegrate or dissolve on its uncoated surface and this causes rupture and fragmentation of the water-insoluble coating and the tissue paper top layer while the entire liner and contents can then, after only a very few seconds, be flushed down the toilet or sewage disposal system. In this way, the patient and nurse, for example, are provided with a convenient and greatly improved sanitary means for collecting and disposing of excrement with minimum of malodor and the bedpan itself thereafter requires very little cleaning and sanitizing in contrast to ordinary practices.

It is to be understood that the polyvinyl alcohol base film is per se known and available and is of a type which is known to be water-disintegratable or -soluble after a short time of contact with water, but the presence of the water-insoluble coating prevents or retards premature disintegration of the polyvinyl alcohol base film while the tissue paper layer on the paraffin or wax coating prevents the liner from sticking to the patient's buttocks. The entire liner is very thin and can be of a thickness of about 1/100 of an inch or less or, optionally, it may be thicker, if desired, or the tissue paper layer may be fluffy with greater slip. The tensile strength and resistance to rupture of the liner as a whole is more than adequate for the excrement which it receives.

Thus, there has been provided a very simple and inexpensive, yet highly useful, product which has great utility and advantage, particularly since hospitals are frequently overcrowded and understaffed. The bedpan may be of any usual or conventional nature and design and while ordinarily made of enameled metal, this does not constitute any limitation upon the invention. When the liner is to be used, it is placed over the bedpan with the PVA or other cold water-soluble film on the underside and then pushed centrally lightly downwardly into the bedpan while still allowing the four corners of the liner to project beyond the bedpan so that they can be used to pick up and gather the liner into the shape shown in FIG. 4 at the appropriate time. The paper layer 13 not only prevents adherence of the liner to the buttocks of the patient but prevents the shock of the coldness of the metal of the bedpan from affecting the patient. When the liner and contents are deposited in a toilet, the PVA rapidly dissolves or disintegrates and the unsupported insoluble coating then has insufficient strength so that it breaks up into numerous small pieces and unlike an insoluble plastic or paper sheet or film, it presents no problem to the sewage disposal system.

It is also to be understood that a 4-ply liner constitutes a modified form of the invention wherein the PVA or other cold water-soluble base film is provided on the other side of the base film from the insoluble coating with a layer of paper which is strong when dry but of weak wet strength. The water-insoluble coating material can also be other hydrophobic materials such as silicates, silicones, or cellulose derivatives, such as ethylcellulose or nitro-cellulose.

The foregoing is intended as illustrative and not as limitative and within the terms of the appended claims,

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various modifications may be made without departing from the principles described.

What is claimed is:

1. A bedpan liner adapted to be placed over a bedpan with its corners projecting beyond the bedpan comprising a cold water-soluble base film of synthetic polymeric material, a water-insoluble or -repellent coating on one side of the base film and tissue paper covering and adherent to the insoluble coating.

2. A liner according to claim 1 wherein the cold water-soluble base film is polyvinyl alcohol.

3. A liner according to claim 1 wherein the insoluble coating is a combination of ethyl vinyl acetate polyethylene-paraffin-microwax, or a waterproof coating material which would physically break up or eventually dissolve in a sewage system.

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4. A liner according to claim 1 wherein the tissue paper is of single ply toilet tissue quality.

5. A liner according to claim 1 having a high dry strength-weak wet strength paper layer on the other side of the base film.

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15 LAVERNE D. GEIGER, Primary Examiner

J. H. DODGE, Assistant Examiner

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,546,716 Dated December 15, 197

Inventor(s) David H. E. Laumann

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

In the heading to the printed specification, lines 3 and 4, "David H. E. Laumann, P. O. Box 960, Freehold, N. 07728" should read -- David H. E. Laumann, Freehold, N. J., assignor to National Polymers and Chemicals Corporation, Freehold, N. J. --.

Signed and sealed this 6th day of April 1971.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

WILLIAM E. SCHUYLER, J.
Commissioner of Patent.