

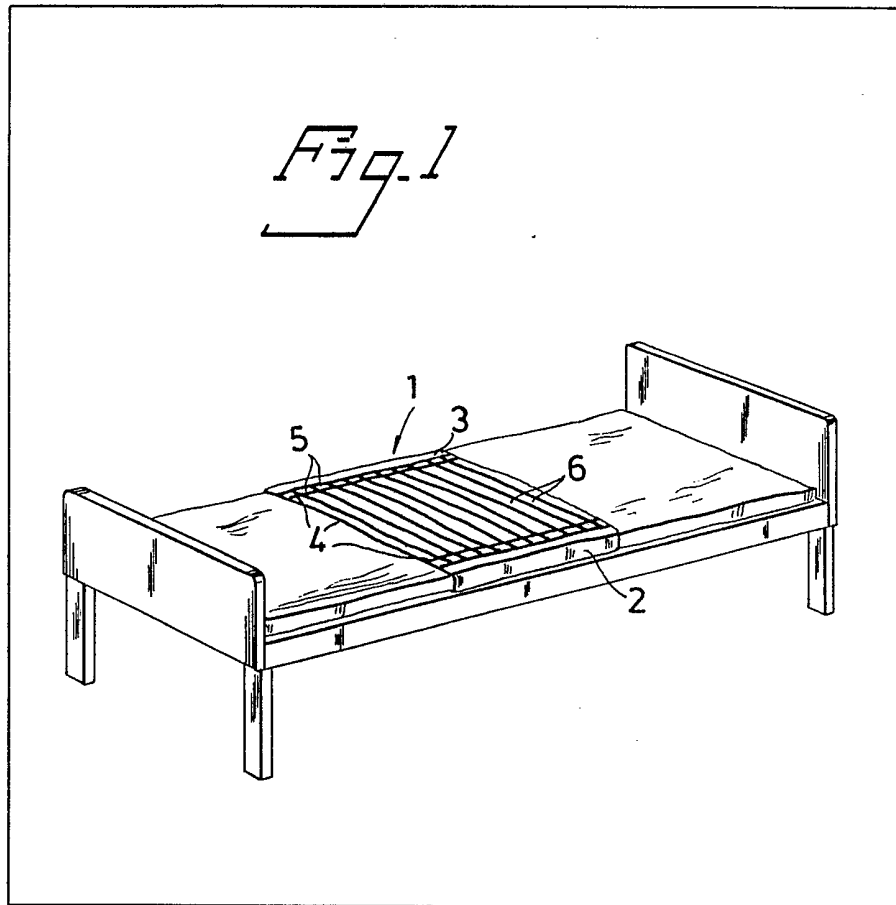
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(54) **Absorption pad**

(57) An absorption pad (1), e.g. in the form of a bed protector, includes a liquid-impervious material layer (2) with a liquid-absorbent material layer (3) affixed thereto. The liquid-absorbent layer is impregnated with a

liquid-resistant agent composed without disadvantageous stiffening effect such as to form a pattern (4) of lengths or strings forming compartments (5, 6) over preferably the whole of the area of the absorption pad for limiting the spread of liquid coming onto the absorption pad e.g. from an incontinent patient.



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Fig. 1

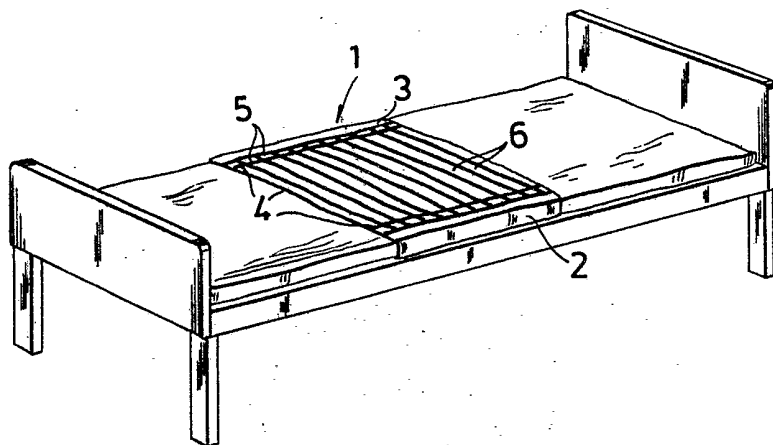


Fig. 2

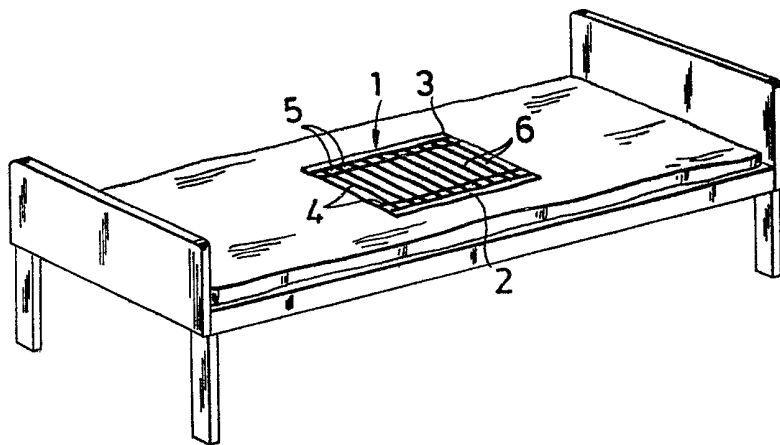


Fig. 3

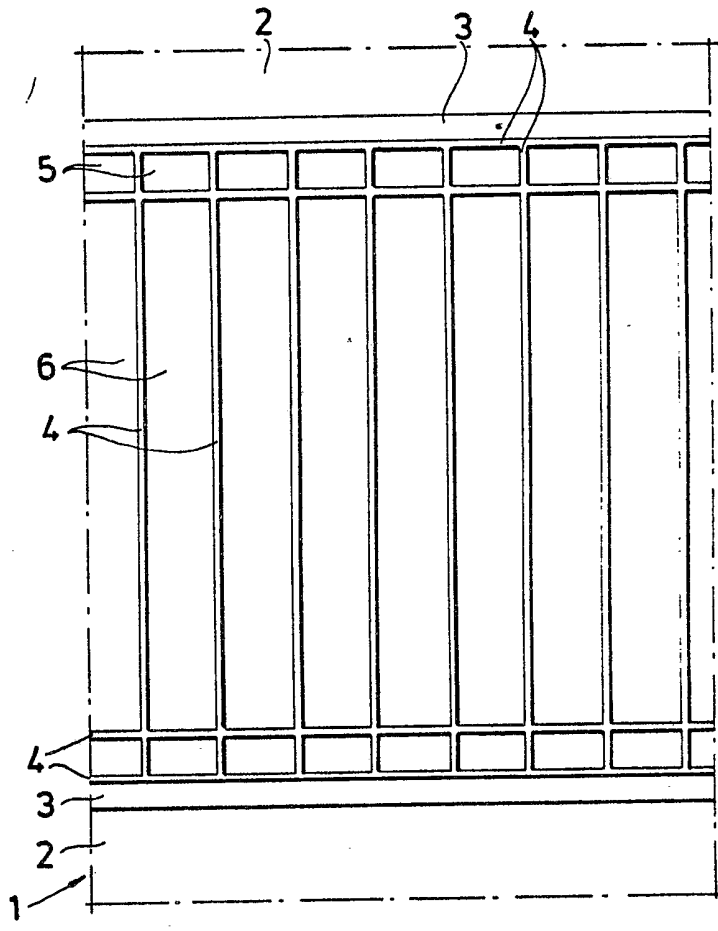
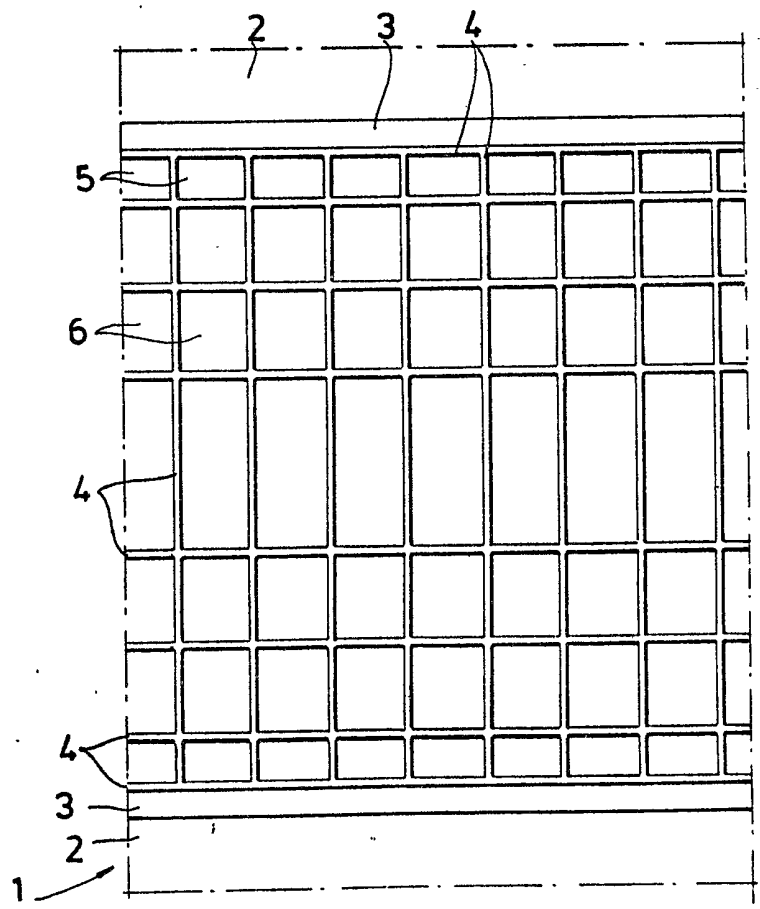


Fig. 4



SPECIFICATION
Absorption pad

Field of Invention

5 The present invention relates to an absorption pad, e.g. for use as a bed protector, comprising a layer of material impervious to liquid and a layer of liquid-absorbent attached thereto.

Background to the Invention

10 So-called bed protectors are presently available for protecting beds and the like from liquid excretions, e.g. from incontinent patients. With the currently available protectors, particularly such protectors as are used within medical care, liquid excreted by a patient lying on the bed protector
15 spreads outwardly towards the edge of the protector, and if the volume of excreted liquid is large the liquid often runs out over the edges of the protector and so wets bedding, e.g. the undersheet and mattress.

20 It is accordingly an object of the present invention to provide an improved absorption pad.

The Invention

25 According to the present invention there is provided an absorption pad comprising a liquid-impervious material layer and a liquid-absorbent material layer affixed thereto, wherein the liquid-absorbent layer is impregnated with a liquid-resistant agent composed so as not to have a disadvantageous stiffening effect, said agent
30 being disposed in lengths to form a series of liquid catchment compartments for limiting the spread over said pad of liquid.

35 The provision of a series of liquid catchment compartments on the pad, separated by lengths impregnated with the liquid-resisting agent, means that liquid applied, e.g. excreted, onto the pad spreads in stages over the area of the liquid-absorbing material layer, as compartments become saturated in turn. This effect reduces the
40 likelihood of liquid running off the edges of the pad, even for large liquid excretions, and so reduces the risk of bedclothes, mattresses etc. becoming wet.

45 Preferably, the liquid-absorbent material layer is laminated to the liquid-impermeable material layer, e.g. in a lattice or grid pattern of lines of adhesive. The pattern of laminations is preferably identical to and in register with the pattern of
50 impregnation. Such embodiments have higher absorption because, inter alia, free liquid can be kept between the bottommost fibres in the absorption material and the liquid-impervious material, while at the same time providing a softer and more pliable combined material with less
55 consumption of adhesive, compared with lamination using adhesive over the entire mating surfaces. The laminate formed by adhesion in a lattice filament or grid pattern also gives a blocking function in respect of liquid which tends
60 to migrate along the liquid-impervious material layer, compared with spot-adhered or line-adhered laminate.

An absorption pad in accordance with the present invention may be produced in a range of different sizes and shapes and may be used for protecting, e.g., beds, chairs and other furniture and also pillows, operation cushions etc. A pad in accordance with the invention finds application in a variety of different fields, such as in connection
70 with incontinence, bedwetting, accidents, surgery, home nursing, babycare etc.

The invention will now be described, by way of example, with reference to the accompanying drawings.

75 In the Drawings

Figure 1 is a perspective view of a bed having located thereon an absorption pad in accordance with the present invention in the form of a bed protector;

80 Figure 2 is a view similar to Figure 1 illustrating an alternative embodiment of absorption pad in accordance with the present invention;

Figure 3 is a plan view to an enlarged scale showing part of an absorption pad in accordance with the present invention; and

85 Figure 4 is a view similar to Figure 3 illustrating another embodiment of absorption pad in accordance with the present invention.

Detailed Description of the Drawings

90 Figure 1 illustrates an absorption pad 1 in accordance with the present invention in the form of a bed protector, which is shown lying on the upper surface of the mattress of a bed. The absorption pad 1 comprises a lower, liquid-impervious material layer 2 to which is adhered an upper liquid-absorbent material 3. Layers 2 and 3 are both of rectangular form, but layer 2 is of greater extent than layer 3 and includes side strips or flaps which are adapted to be tucked under the
100 mattress, as illustrated, for securing the bed protector to the bed.

The bed protector illustrated in Figure 2 is generally similar to the Figure 1 embodiment, but is of smaller size. Further, layers 2 and 3 are generally the same extent and the pad does not include side strips adapted to be tucked under the mattress. This embodiment is intended to be used by being loosely laid on a mattress, unattached thereto.

110 Figure 3 illustrates the construction of absorption pad 1 in greater detail. In each embodiment the liquid-absorbent material layer 3 is impregnated with a liquid-resistant agent of a composition which has no disadvantageous stiffening effect on the pad. The liquid-resistant agent is applied in a series of lengths of straight lines or strings 4 extending longitudinally and transversely relative to the pad (and bed), thus forming a grid-like pattern. The lines 4 define therebetween a series of rectangular
115 compartments including transverse compartments 6 having a major dimension extending transversely relative to the pad (and bed) and longitudinal compartments 5 having a major dimension extending longitudinally relative to the
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pad (and bed).

The impregnated lines 4 form liquid-resisting barriers which divide the liquid-absorbent material layer 3 into a series of discrete compartments 5 and 6 within which liquid will normally be confined and between which there will normally be no liquid flow. Liquid will only pass from one compartment to an adjacent compartment or compartments when the liquid-absorbent material in the first compartment is saturated; at this point liquid will spread to an adjacent compartment or compartments. This effect also applies locally along a compartment edge in an area pressed down by a patient.

This construction means that when liquid is applied to the pad liquid flow towards the edges of the pad is constrained and will occur in steps as individual compartments become saturated. This effect reduces the likelihood of liquid running off the edges of the pad and so, for example, wetting bedding.

The quantity of liquid a compartment may contain or absorb is dependent on the thickness or height of the blocking string 4 and on the thickness and properties of the liquid-absorbent material of layer 3. In the illustrated embodiments of Figures 1 to 4, the height or thickness of the layer 3 and strings 4 has been selected to be about 1 mm, and the width of the strings 4 has been selected to be about 10 mm.

In the compartments 5, liquid will be distributed in the longitudinal direction of the compartments after reaching the major, longitudinally extending strings 4 before spilling over the edges of the compartment. The compartments 5 as illustrated in Figures 3 and 4 are of fairly short longitudinal extent, and in other embodiments these compartments 5 may be modified so as to be of greater longitudinal extent, possibly extending along the full length of the absorption pad.

In the embodiment of Figure 3, transverse compartments extend across almost the full width of the absorption pad. This arrangement is suitable for use in circumstances where there is likely to be a substantial delay before a patient receives attention after excretion, as the long compartments 6 permit liquid to spread outwardly as far as possible (without overflowing from the pad), thus improving the comfort of the patient.

In contrast, in circumstances where it is likely that a patient will receive attention soon after excretion, it is preferred to use an arrangement in which the transverse compartments are of shorter extent, e.g. as with the embodiment illustrated in Figure 4, as this arrangement minimises the risk of overflow from the pad. In this case, the wetted area will be confined to the central region of the pad rather than being spread further sideways as with the Figure 3 embodiment. This arrangement is less comfortable for the patient but this is acceptable if the patient is to be attended shortly.

Material layers 2 and 3 are preferably laminated together using a lattice pattern adhesion technique, with the layers secured

together by lines of adhesive arranged in a lattice or grid pattern. This arrangement is preferred to laminating the layers together over the entire adjacent surfaces, as a grid pattern involves use of less adhesive and also has the advantage that a greater amount of liquid can be retained in the absorption pad, between the absorbent material layer 3 and the liquid-impervious layer 2. An effective liquid blocking function is furthermore obtained with lattice pattern adhesion, if the adhesive lines or filaments in the lamination lattice or grid pattern are appropriately located and dimensioned in relation to the location and width of the strings 4 so as to prevent liquid migration under the strings 4.

The liquid material layer 3 may be laminated to the liquid-impervious layer 2 over the whole of minor portions of the mating surfaces in a grid pattern identical to and in register with the grid pattern of the strings 4, i.e. in identical coating patterns. The bottoms of the compartments can then be additionally laminated in a larger scale grid pattern of adhesive filaments than that required under the strings 4. By providing a suitable relationship between the sizes of these two grids an effective liquid barrier can be obtained at the interface between the two layers 2 and 3.

By impregnating the liquid-absorbent material 3 from both sides before lamination there is obtained the advantage that the liquid blocking function will also be ensured at the surface engaging against the liquid-impervious layer. Further, the pattern of strings 4 can be varied in relation to the coating properties of the absorption material layer 3 and the liquid-resistant agent in respect of the excreted liquid.

In some fields of use, such as incontinence, bedwetting, accidents, surgery, home nursing, baby care, etc., when the inventive pad is used as a protector for beds, seats, pillows, operation cushions etc., it may be suitable to use the inventive absorption pad with compartments 5 and 6 confined or constituted by impregnated strings 4.

CLAIMS

1. An absorption pad comprising a liquid-impervious material layer and a liquid-absorbent material layer affixed thereto, wherein the liquid-absorbent layer is impregnated with a liquid-resistant agent composed so as not to have a disadvantageous stiffening effect, said agent being disposed in lengths to form a series of liquid catchment compartments for limiting the spread over said pad of liquid.

2. An absorption pad as claimed in claim 1, wherein the liquid-resistant agent is applied to the liquid-absorbent material layer in transverse and longitudinal lengths to form a series of transversely extending compartments and longitudinally extending compartments.

3. An absorption pad as claimed in claim 1 or 2, wherein the liquid-absorbent material layer is laminated to the liquid-impermeable material

layer.

4. An absorption pad as claimed in claim 3, wherein the layers are laminated by means of adhesive.
- 5 5. An absorption pad as claimed in claim 3 or 4, wherein the layers are laminated in a lattice or grid pattern of lines.
6. An absorption pad as claimed in claim 5, wherein the lattice or grid pattern of laminations is related to the pattern of impregnated lengths of the liquid-absorbent layer, so as to prevent liquid movement under the impregnated lengths.
- 10 7. An absorption pad as claimed in claim 6, wherein the pattern of laminations is identical to and in register with the pattern of impregnated lengths.
- 15 8. An absorption pad as claimed in any one of the preceding claims, wherein the liquid-absorbent material layer is laminated to the liquid-impervious material layer over portions of the entire interface between the layers in register with the impregnated pattern of lengths of liquid-resistant agent forming the compartments in the liquid-absorbent material layer.
- 20 9. An absorption pad as claimed in any one of the preceding claims, wherein substantially the entire area of the liquid-absorbent layer is impregnated with lengths of liquid-resistant agent.
- 25 10. An absorption pad substantially as herein described with reference to, and as shown in, the accompanying drawings.
- 30 11. A bed protector comprising an absorption pad in accordance with any one of the preceding claims.