

April 4, 1972

J. K. ZISBLATT  
DISPOSABLE COVERING

3,654,059

Filed Sept. 15, 1969

3 Sheets-Sheet 1

FIG. 1

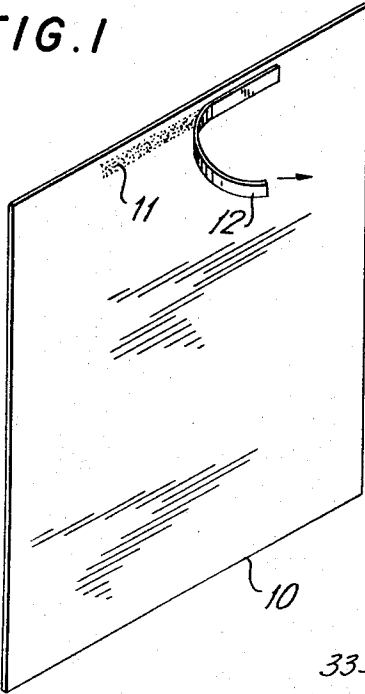


FIG. 2

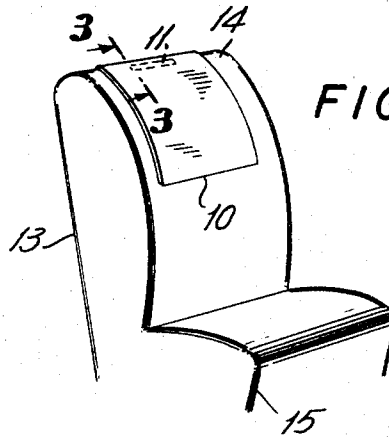


FIG. 7

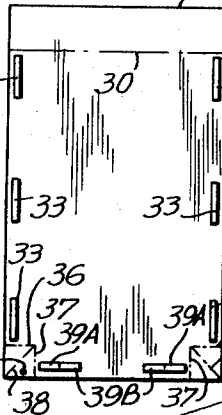


FIG. 3

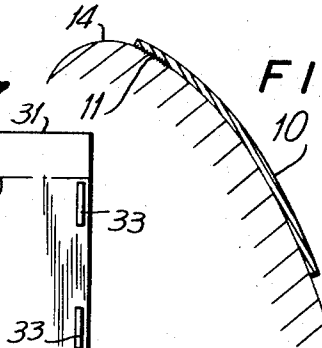


FIG. 4

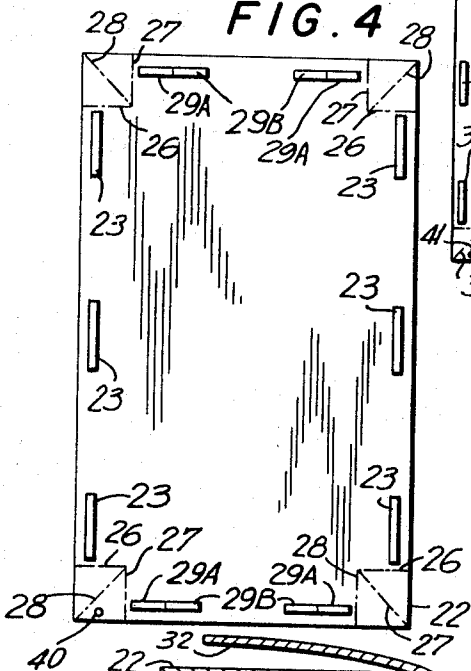


FIG. 5

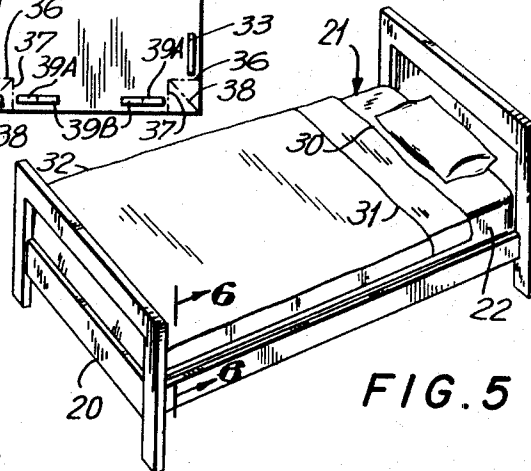
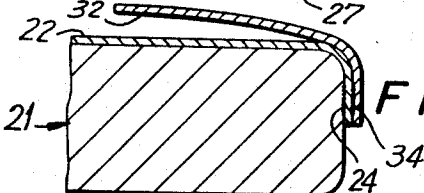


FIG. 6



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FIG. 8

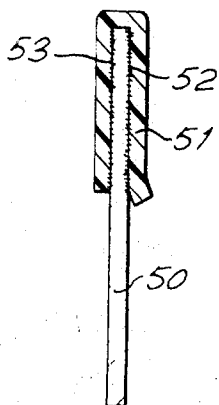


FIG. 9

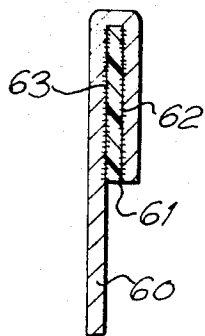


FIG. 10

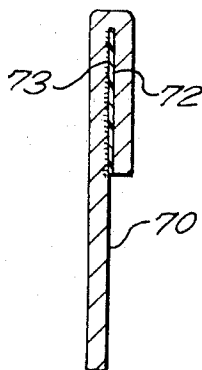


FIG. 8a

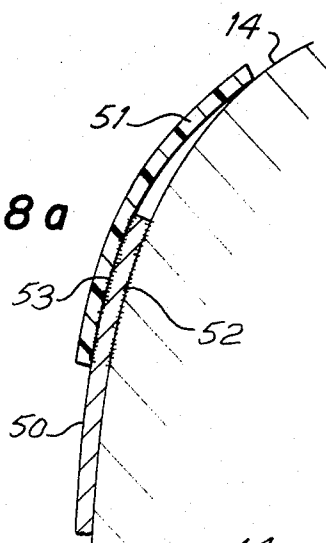


FIG. 9a

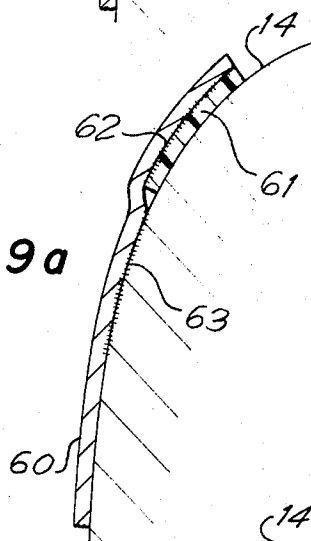
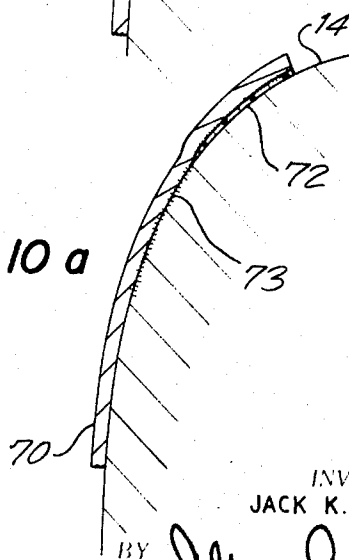


FIG. 10a



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FIG. 11

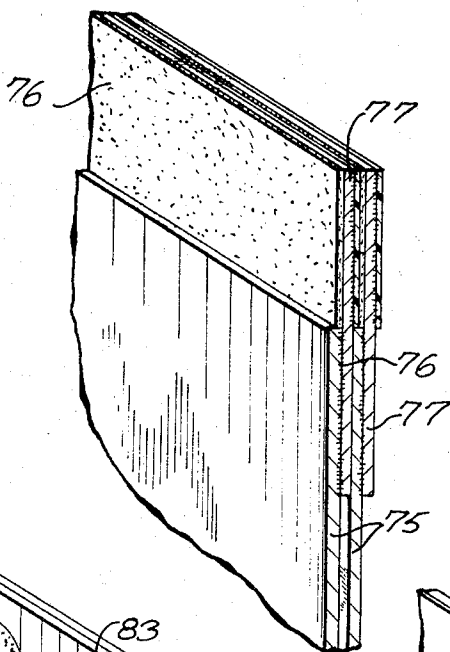


FIG. 15

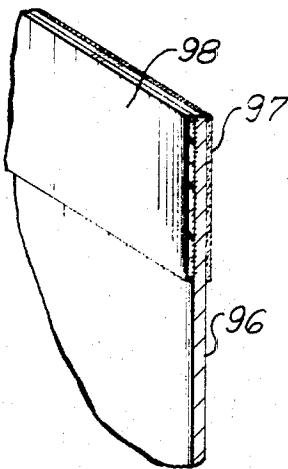


FIG. 12

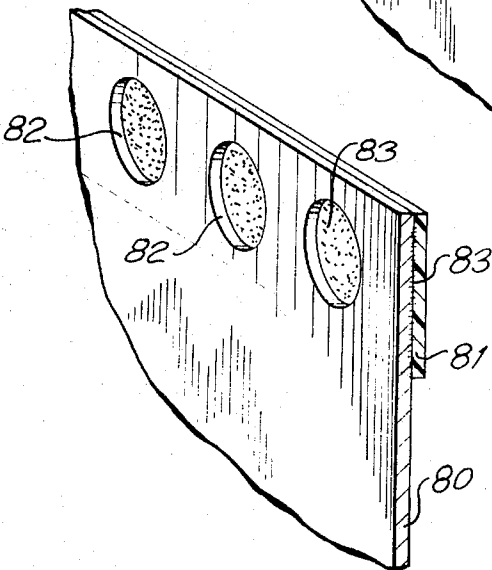


FIG. 13

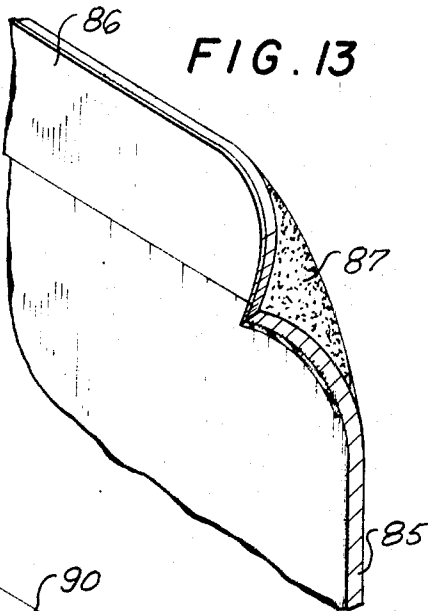
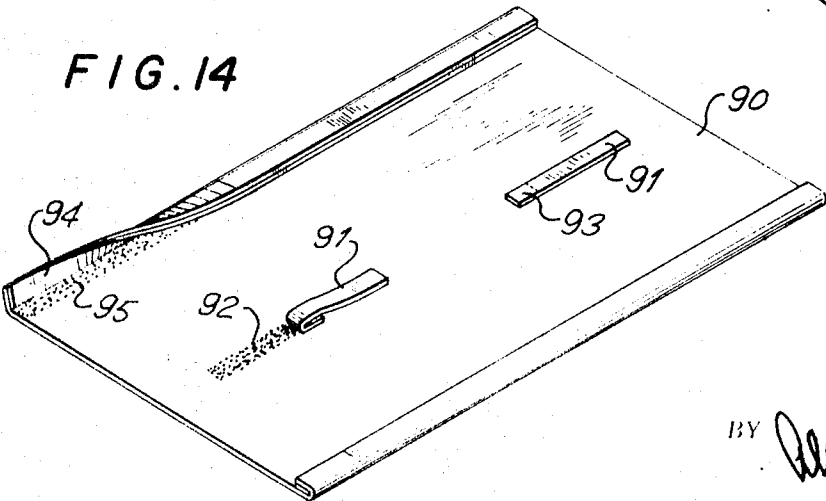


FIG. 14



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## DISPOSABLE COVERING

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Continuation-in-part of application Ser. No. 768,439, Oct. 17, 1968. This application Sept. 15, 1969, Ser. No. 857,809

Int. Cl. B32b 3/10; C09j 7/04

U.S. Cl. 161—109

14 Claims

### ABSTRACT OF THE DISCLOSURE

A disposable covering such as an antimacassar for the protection of beds, sofas and chairs consisting of non-woven fabric material having one or more adhesive strips disposed along one or more of its surfaces, and containing a backing strip or adhesive release for covering the adhesive until the non-woven, disposable fabric is ready for use. The covering may serve as a headrest cover, or a mattress cover, and after use, may easily be removed from the article of furniture without leaving behind any of its adhesive backing.

This is a continuation-in-part of application Ser. No. 768,439, filed on Oct. 17, 1968 now abandoned.

This invention relates to a disposable cover consisting of a non-woven fabric covering for being secured to beds, chairs, and other articles of furniture.

More specifically, this invention relates to a disposable, non-woven fabric covering which includes an adhesive for temporarily securing the covering to articles of furniture until they become soiled so that it may be easily removed from the furniture without leaving any trace of adhesive.

Conventional coverings for articles of furniture such as chairs, beds, and sofas and the like, have generally consisted of a woven cloth fabric, which is secured by fasteners, or other mechanical means to the furniture. When these coverings become soiled, they require laundering before they can be reused. In commercial travel vehicles where large numbers of seats are utilized, it has become popular to employ disposable headrest covers which are secured by some form of mechanical fastening device to the top of the seat. Early securing devices for headrest covers utilized mechanical clips and fasteners which secured an edge of the covers to the back side of the headrest. After repeated use, the mechanical fasteners which were built into the chairs often failed, and required the chair to be taken out of service. Later, attempts to get away from mechanical fasteners for headrest covers utilized "Velcro," a material consisting of an irregular loose looped pile, randomly formed, which was adapted to grip a base material consisting of a plurality of closely spaced upstanding hooks formed of a resilient flexible material. However, repeated use of "Velcro" fasteners, particularly for headrest covers of airline seats, has caused not only the fabric covering of the seat to tear, but also has resulted in the partial destruction of the upstanding hooks of the fastener.

Accordingly, the present invention provides a disposable, non-woven fabric cover for the headrest of a chair, the mattress of a bed, or a sheet for a bed which employs an adhesive fastening means that does not destroy or materially alter the furniture to which it is attached.

A non-woven fabric is considered as a structure produced by bonding or the interlocking of fibers, or both, accomplished by mechanical, chemical, thermal, or solvent means and combinations thereof.

The invention also permits repeated cover replacement since each new covering contains a fresh adhesive strip

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for holding the cover to the furniture. The adhesive strip which is applied along the edges of the cover is designed to release from the fabric of the furniture to which it is applied when the soiled cover is removed, without leaving any adhesive marks, or marring the upholstery. In one embodiment of the invention, the adhesive strip may consist of a pressure sensitive transfer tape applied along one or more edges or surfaces of the non-woven, disposable cover, and provided with a non-adhesive backing strip for protecting its adhesive surface until the cover is ready for use. When the device of the invention is utilized as a headrest cover, it finds particular application to the seats of airlines and busses, since it can be quickly installed and disassembled between trips. When the non-woven disposable cover is utilized as a mattress cover, or bed sheet, it finds particular application in hospitals and doctors' offices since it can easily and quickly be replaced to make ready for the reception of another patient.

In several other embodiments of the invention, the adhesive backing strip may be permanently secured to one edge of the covering and folded over upon the adhesive area so that when the covering is ready to be applied to an article of furniture, the edge of the covering can be unfolded to expose the adhesive while retaining its adhesive backing. In still a further embodiment, the edge of the covering may be perforated to expose the adhesive so that the covering can be applied to articles of furniture by pressing the adhesive through the perforations into contact with the surface of the furniture articles.

It is therefore an object according to the present invention to provide a disposable, non-woven covering for beds, sofas and chairs and the like which may easily be secured and removed from the fabric of these articles.

It is another object according to the present invention to provide a disposable covering for furniture articles which may be quickly assembled and disassembled without marring the fabric, vinyl, or upholstery of the furniture.

It is still another object according to the present invention to provide a disposable non-woven covering for beds, sofas, and chairs which is simple in design, inexpensive to manufacture, and reliable in operation.

Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying drawings, which disclose several embodiments of the present invention. It should be understood, however, that the drawings are designed for the purpose of illustration only, and not as a definition of the limits of the invention.

In the drawings, wherein similar reference characters denote similar elements throughout the several views: FIG. 1 is a plan view of one embodiment of the disposable non-woven covering according to the invention utilized as a headrest cover for a seat;

FIG. 2 is a plan view disclosing the application of the cover of FIG. 1 onto the headrest of a conventional seat;

FIG. 3 is a cross-sectional view taken along section 3—3 of FIG. 2;

FIG. 4 is a plan view of another embodiment of the cover of the invention utilized as a mattress cover;

FIG. 5 is a plan view of the application of the coverings of FIG. 4 and 7 onto the mattress of a bed;

FIG. 6 is a cross-sectional view taken along section 6—6 of FIG. 5;

FIG. 7 is a plan view of a bed sheet according to the invention;

FIGS. 8 and 8a disclose a disposable covering having its backing strip folded over both sides of one edge of the covering so that the strip can be lifted off one side and applied to an article;

FIGS. 9 and 9a disclose a covering folded over upon a backing strip along one edge of the covering so that the edge can be opened up exposing its adhesive for application to an article of furniture;

FIGS. 10 and 10a disclose one edge of a covering folded over upon itself to enclose a release coating to cover its adhesive so that when it is opened, the adhesive becomes exposed for attachment to an article of furniture;

FIG. 11 discloses a group of disposable coverings which are stacked upon each other in readiness for application;

FIG. 12 discloses a disposable covering having a plurality of apertures for exposing its adhesive;

FIG. 13 discloses another form of covering capable of being removed from a stack; and

FIG. 14 discloses another embodiment of the invention in a form of an improved mattress covering; and

FIG. 15 is a cross-sectional view of a disposable covering having an adhesive on one side and a release agent on its opposite side.

Referring to FIGS. 1-3, there is shown a first embodiment according to the invention of a covering 10, constructed from a non-woven fabric material such as a paper product resembling the texture of cloth. Along the top edge of disposable covering 10 is applied an adhesive strip 11 which may in one embodiment consist of a pressure sensitive transfer tape having adhesive surfaces on both sides. One adhesive surface secures the tape along the top edge of covering 10. The second adhesive surface which is exposed, is covered by a backing strip 12 constructed from a plastic coated paper. Backing strip 12 will easily peel away from adhesive strip 11, when cover 10 is ready to be applied.

The back rest 13 of chair 15 as shown in FIG. 2 is upholstered over its headrest portion 14. It is customary to protect the upholstery of the headrest with a cloth cover secured over top portion 14. As shown in the cross-sectional view of FIG. 3, disposable covering 10, having its backing strip 12 removed, is applied to headrest 14 of chair 15. The exposed adhesive of strip 11 is pressed against the fabric or upholstery of top portion 14 so as to maintain covering 10 in a fixed, non-adjustable position, in order to withstand the movement of persons using chair 15. Adhesive strip 11 is translucent, and not visible from the front side of covering 10 so that the cover appears to be floating freely on headrest 14 of chair 15. Adhesive of strip 11 has a greater adherence to the non-woven fibers of fabric covering 10 than to the fabric, upholstery, or vinyl covering of headrest 14 of chair 15. Therefore, after headrest covering 10 has become soiled, it can easily be peeled away from headrest 14 without leaving any traces of adhesive. Moreover, the adhesiveness of strip 11 is not so destructively strong as to pull away any part of the surface of the vinyl, upholstery, or fabric covering of headrest 14.

Referring to FIGS. 4-6, there is shown a mattress cover 22 which may be constructed from the same disposable non-woven fabric as covering 10. An adhesive strip 24 is mounted on one side substantially along the four edges of covering 22 and protected by backing strips 23, similar to backing strip 12 of covering 10. Disposable mattress cover 22 is constructed only slightly larger than mattress 21, so that its edges containing adhesive strip 24 can be folded against the sides of mattress 21 in contact with its fabric body. Adhesive strips 24 are positioned and secured to mattress cover 22 beneath each of the backing strips 23 and end strips 29. At the corners of mattress cover 22 are shown in dotted lines, the fold lines which will occur when the mattress cover is tucked in the mitered corners against the mattress. Lines 26 and 27 define the sides of the mattress where the fold line will occur, and line 28 defines the fold of the resulting flap which will occur when fold lines 26 and 27 are formed on each corner of the mattress. After folds 26 and 27 are formed in mattress cover 22, the flaps, defined by folds 28, are folded over toward the adhesive strips 24 which are under-

neath backing strips 29A. The removal of backing strips 29A will permit the flaps to adhere to about half of the adhesive strip underneath backing strip 29. The second portion of the end adhesive strips 24, covered by backing strips 29B, remain exposed in order to grip the fabric surface at the end of mattress 21. Therefore, each adhesive strip 24 at the ends of the mattress, and covered by backing strip 29 serve a dual purpose of securing the corner flaps defined by fold lines 28, and retaining cover 22 to the ends of mattress 21. As shown in FIG. 6, mattress cover 22 need only extend over one edge around the mattress since the strength of adhesive strips 24 is sufficient to resist the movement of persons using mattress 21 without becoming unfastened.

Referring to FIGS. 5, 6, and 7, bed 20 is also shown having a disposable sheet 32 which includes a plurality of adhesive strips 34 covered by backing strips 33 and 39 around three sides of sheet 32. Adhesive strips 34 are not placed on ends 31 of sheet 32 in order to permit sheet 32 to be folded back near the head of the bed at fold line 30. The foot of sheet 32 includes in dotted line, folds 36 and 37 which define the mitered edges of the mattress and fold line 38 which defines the fold of the flap to be tucked in along the sides of the mattress and secured by adhesive strip 34 which is located under each of backing strips 39A. Sheet 32 and mattress cover 22 may, if desired, be provided with one or more holes 41 and 40 located between fold lines 28 or 38, and lines 27 or 37, which will permit the adhesive strips under backing strips 29A or 39A to also secure the adjoining flap surfaces between lines 26 and 28, or between lines 36 and 38. Therefore, in the manner similar to that described with respect to mattress cover 22, adhesive strips 34 which are contained under backing strips 39B will remain exposed after strip 39B is removed in order to secure the sheet against mattress cover 22, or the fabric of mattress 21, as shown in detail in FIG. 6.

The adhesive strips which are utilized to secure disposable covering 22, and sheet 32 to the mattress of bed 20, produce a considerable saving in cost over the amount of non-woven fabric which is required by conventional disposable sheets. Conventional disposable sheets which do not contain the adhesive strips of the present invention, require an additional 30-40% more non-woven fabric in order to permit the sheets and covers to be tucked in substantially under the mattress in order to resist removal. The cost of adding the adhesive strips to disposable cover 22 and sheet 32 is negligible compared to the cost of providing the additional 30-40% of non-woven fabric as in the case of conventional coverings. Therefore, the present invention provides substantial savings for hospitals, institutions and the like which utilize large quantities of disposable mattress covers and sheets.

In a manner similar to that described with respect to headrest cover 10, mattress cover 22 and sheet 32 can easily be removed from mattress 21 by pulling adhesive strips 24 and 34 away from the fabric of the mattress. Likewise, none of the adhesive remains stuck to the mattress, nor destructively harms the fabric surfaces of the mattress. Mattress cover 22 and sheet 32 can be quickly changed so that bed 20 will be available without delay, to receive another patient.

In some applications of the non-woven disposable coverings, it may be undesirable to have the backing strips completely removable from the covering as in FIGS. 1-7, when the covering is made ready for use. In applications where many coverings will be simultaneously applied to a multitude of furniture articles, the backing strips may serve to contaminate and clutter the working area. The embodiment of FIGS. 8-14 are therefore designed to retain the backing strips or releasing agents to the covering after the adhesive has been exposed. Therefore, in these embodiments, a further adhesive is provided for retaining the backing strips or releasing agent to the headrest at all times.

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Referring to FIGS. 8 and 8a, there is shown a disposable covering 50 constructed from non-woven material and having adhesive surfaces 52 and 53 disposed along one of its edges. A backing strip 51 is folded over the exposed adhesive surfaces 52 and 53 for their protection. When covering 50 is applied to the back of a chair 14, approximately half of backing strip 51 is lifted away from covering 50 to expose adhesive surface 52 so that it may be secured to headrest 14. Adhesive surface 53 retains backing strip 51 to covering 50 during its use.

Referring to FIGS. 9 and 9a, there is shown a disposable non-woven covering 60 whose one end is folded over upon itself to include backing strip 61. Adhesive 62 secures backing strip 61 to covering 60 while backing strip 61 protects adhesive 63 which is secured on the surface of covering 60. In order to apply the covering to headrest 14, the edge of covering 60 is opened up so that backing strip 61 is removed from adhesive 63 so as to expose the adhesive surface to headrest 14. Backing strip 61 remains secured through adhesive 62 to covering 60 while the covering is being used. In order to remove covering 60 from headrest 14, it is only necessary to pull downward on its edge portion containing backing strip 61 in order to break the bond of adhesive 63.

Referring to FIGS. 10 and 10a, covering 70 which is similar in construction to the previously-described coverings is folded over at its edge and includes a silicon release agent 72 which covers over adhesive portion 73. In order to apply this embodiment to headrest 14, the edge of covering 70 is opened up so as to detach silicon release agent 72 from adhesive layer 73 so that the adhesive can be applied to headrest 14. In a manner similar to that described with respect to the embodiment of FIGS. 9 and 9a, covering 70 can be removed by pulling downward on its edge portion containing release agent 72 so as to pull adhesive 73 away from the surface of headrest 14.

The embodiments of FIGS. 11, 12 and 13 have been constructed for stacking a plurality of coverings one upon the other so that when each covering is removed from the stack, its adhesive surface becomes immediately exposed so that the covering is ready to be applied. In vehicles designed for public transportation having a multitude of seats, these stacking arrangements become particularly advantageous since stacks having particular numbers of coverings equal to the number of seats in the vehicle may be distributed to maintenance personnel between trips or flights.

FIG. 11 discloses a plurality of non-woven disposable coverings 75 stacked one upon the other. Each of the coverings 75 includes an adhesive 76 disposed along one surface of its edge and covered by backing strips 77. In order to rapidly apply covering 75 to a plurality of headrest surfaces, the coverings can be removed by peeling away their adhesive bearing edge from backing strips 77.

FIG. 12 discloses still another embodiment of the invention wherein at least one edge of a disposable non-woven covering 80 includes a plurality of spaced-apart openings 82 which expose adhesive surfaces 83 through the openings. A backing strip 81 covers over the back side of the adhesives so as to permit a plurality of coverings 80 to be stacked one upon the other without sticking together.

In FIG. 13, non-woven disposable covering 85 includes on one surface along its edge, an adhesive 87. On the opposite surface of the same edge, a backing strip 86 is secured. When a plurality of coverings 85 are stacked one upon the other, adhesive 87 comes in contact with backing strip 86 of an adjoining covering so that the coverings may easily be peeled away from the stack, one at a time, for quick application to a head rest surface.

FIG. 14 discloses a bedsheet covering 90 which includes adhesive surfaces 95 along at least two of its edges, and backing strips 94 secured to the same surface of the edge and folded over onto adhesives 95 to completely cover and protect the adhesive surfaces. Along the

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center of covering 90 are further included adhesive portions 92 which are covered over by backing strips 91. A portion 93 of backing strips 91 serves as a tab for lifting up strip 91 away from adhesive 92.

Referring to FIG. 15, there is shown a cross-sectional view of a disposable covering 96 which includes an adhesive 97 disposed along one side adjacent to its end. On the opposite side of covering 96 and shadowing over adhesive 97 is a release agent 98 which consists of silicon, or any other material which is adhesive resistant. Therefore, when a plurality of coverings 96 are stacked one upon the other, the adhesive of one covering will come into contact and cover over the release agent of a succeeding covering so that individual coverings 96 may easily be separated one from the other while they are being applied to the backs of seats.

The disposable, non-woven fabric material may consist of, for example, "Fabray," a product of the Stearns and Foster Company. It can be produced in a variety of designs and colors and include a commercial message or designation, printed on one side. It can also be fire proofed to protect passengers traveling in commercial vehicles.

The adhesive strips may consist of a chemical contact cement which is applied, along one or more edges or surfaces of the covers and covered by paper backing strips or release agents until ready for use. The adhesive strips can also consist of a pressure sensitive transfer tape, or adhesive films, such as Nos. 464, 465, 466 and Y-9300 produced by the 3M Company. U.S. Patent Re. 24,906 issued on Dec. 13, 1960 and assigned to 3M Company discloses the particular properties of 3M type 465 tape. The tape consists of a normally tacky pressure-sensitive adhesive coated film material comprising a coating of a copolymer of monomers consisting essentially of monomeric acrylic acid ester of non-tertiary alkyl alcohol, and at least one monomer copolymerizable with said acrylic acid ester and selected from the group consisting of acrylic acid, methacrylic acid, itaconic acid, acrylamide, methacrylamide, acrylonitrile, and methacrylonitrile. The properties of these tapes are well known and have been found suitable for repeated applications on disposable covers for chairs, sofas and beds.

While several embodiments of the present invention have been shown and described, it will be understood that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention.

What is claimed is:

1. A disposable cover for an article of furniture comprising:
  - a sheet of non-woven fabric having an area sufficient to cover the desired surfaces of the furniture article, and adhering to at least one surface of said sheet
  - a normally tacky pressure-sensitive adhesive coated film material, said material comprising a coating of a copolymer of monomers consisting essentially of monomeric acrylic acid ester of non-tertiary alkyl alcohol, at least one monomer copolymerizable with said acrylic acid ester and selected from the group consisting of acrylic acid, methacrylic acid, itaconic acid, acrylamide, methacrylamide, acrylonitrile, and methacrylonitrile.
2. The disposable cover as recited in claim 1, wherein said sheet of non-woven fabric is fire retardant.
3. The cover as recited in claim 1, wherein said film of adhesive additionally comprises a backing strip demountably coupled over said film.
4. The cover as recited in claim 1, wherein said non-woven fabric is a four-sided sheet for covering a mattress having said adhesive film disposed adjacent to, and along two sides and one end of said sheet.
5. The cover as recited in claim 1, wherein said sheet of fabric includes a plurality of spaced-apart holes along a portion of at least one of its edges to expose said adhesive film through the holes.

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6. The cover as recited in claim 1, wherein said adhesive film comprises an adhesive strip disposed on one side of said fabric, and adhesive release means disposed on the opposite side of said fabric in overshadowing relationship with respect to said adhesive strip.

7. The cover as recited in claim 1, wherein said non-woven fabric is a four-sided mattress covering having said adhesive film disposed adjacent to and along at least a portion of one of its four sides.

8. The cover as recited in claim 7, additionally comprising a non-adhesive backing strip demountably coupled over said adhesive film.

9. The cover as recited in claim 1, wherein said adhesive film comprises;

- a first adhesive strip,
- a releasing means secured to said first adhesive strip, and
- a second adhesive strip for being releasably coupled to said releasing means.

10. The cover as recited in claim 9, wherein said releasing means comprises a silicon release agent.

11. The disposable cover as recited in claim 1, wherein said adhesive film comprises:

- a first adhesive strip,
- a backing strip secured to said first adhesive strip, and
- a second adhesive strip for being releasably coupled to said backing strip.

12. The cover as recited in claim 11, wherein said first and second adhesive strips are disposed on opposite surfaces along at least one edge of said fabric.

13. The cover as recited in claim 12, wherein said first and second adhesion strips are disposed adjacent to each other on the same surface along at least one edge of said fabric.

14. A method of manufacturing disposable covers from non-woven fabric comprising the steps of;

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depositing an adhesive film along at least one portion of one edge of said fabric, said adhesive film comprising a normally tacky pressure-sensitive adhesive coated sheet material, said material comprising a coating of a copolymer of monomers consisting essentially of monomeric acrylic acid ester of non-tertiary alkyl alcohol, at least one monomer copolymerizable with said acrylic acid ester and selected from the group consisting of acrylic acid, methacrylic acid, itaconic acid, acrylamide, methacrylamide, acrylonitrile, and methacrylonitrile, and covering said film with a releasable backing strip firmly adherently bonded thereto.

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WILLARD E. HOAG, Primary Examiner

U.S. Cl. X.R.

5—334 R, 335 R; 24—7; 156—289, 332; 161—100, 102, 113, 149, 167, 251, 256; 297—219, 229