

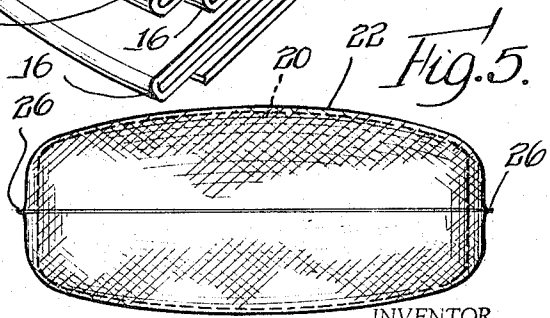
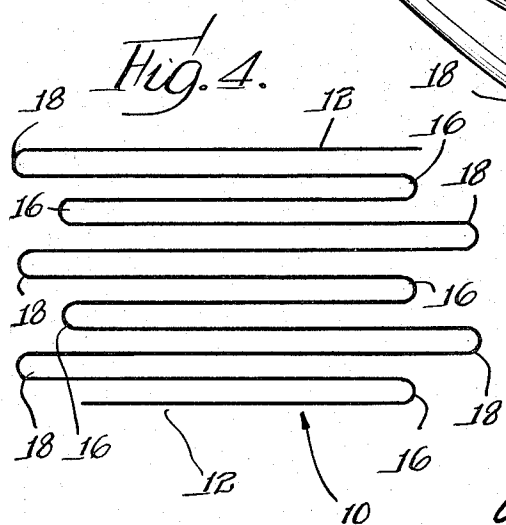
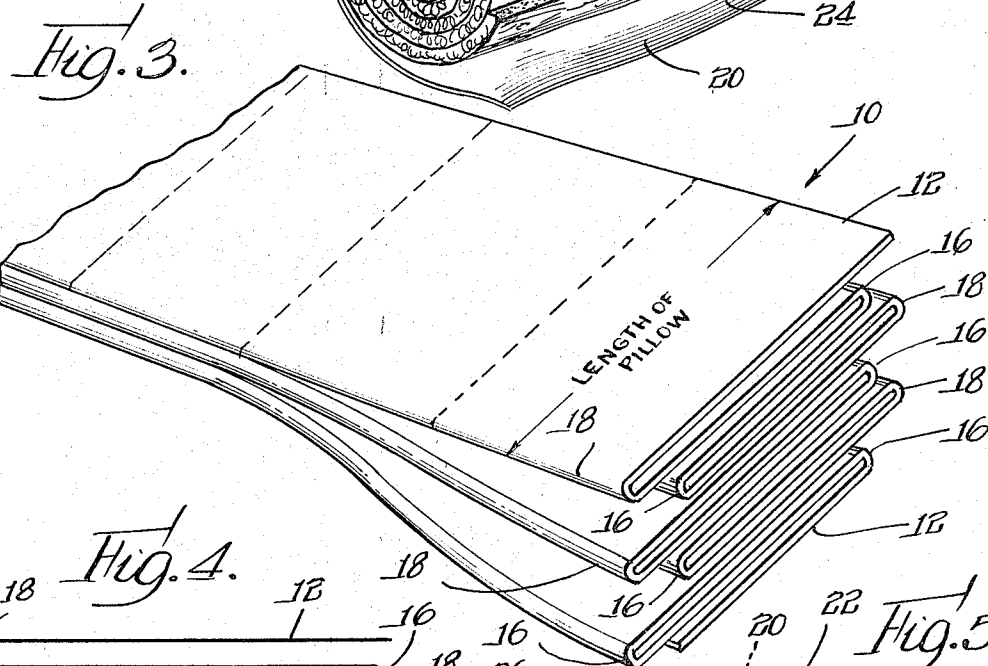
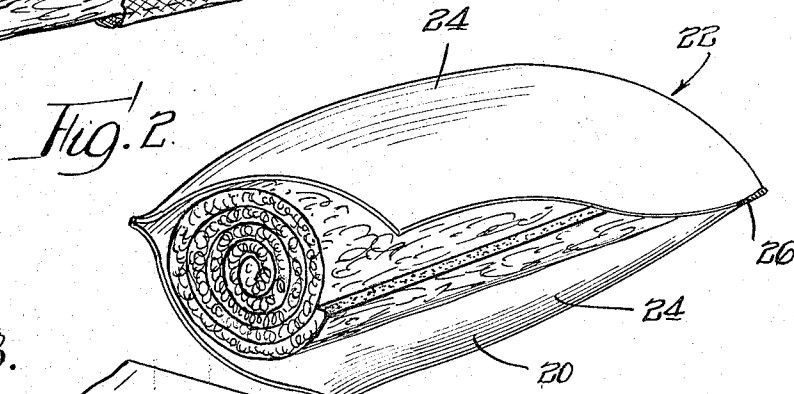
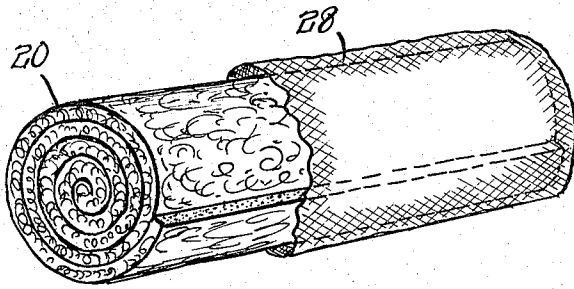
Dec. 13, 1966

A. L. WILLIS

3,290,704

PILLOW AND METHOD OF MAKING SAME

Filed Feb. 12, 1965



INVENTOR.
Arnold L. Willis
BY
Wallenstein, Spengenberg, Kallie & Strangell
Attys.

1

3,290,704

PILLOW AND METHOD OF MAKING SAME
Arnold L. Willis, Chicago, Ill., assignor to United Felt
Company, Chicago, Ill., a corporation of Illinois
Filed Feb. 12, 1965, Ser. No. 432,180
16 Claims. (Cl. 5—337)

This invention relates to improved pillows of the batt-filled type and to a method of making them.

Generally speaking, batt-filled pillows, as heretofore fabricated, involved the steps of rolling an elongated web or mat of a soft, resilient, compressible material, of substantially uniform thickness and density, into a cylindrical batt, forcing, as by stuffing, the thus formed batt into the open end of a pillow tick, and thereafter securing together the free margins of the open end of the tick. To facilitate insertion of the batt into the tick, a pillow compression chute frequently is employed. In utilizing this technique, a pillow tick consisting of two sheets of a suitable ticking material, sewn together on three sides, is mounted on the outlet end of the chute by slipping the open end of the tick thereover. The batt is then forced through the chute into the tick and the open end of the tick is sewn or otherwise closed. In fabricating conventional batt-filled pillows in accordance with the practices outlined, the material of the mat or web at the ends of the batt had a tendency to fold and/or lump together while the batt was being encased in the pillow tick. This folding and/or lumping at the ends of the batt, together with the compressive forces exerted thereon by the tick itself, resulted in pillows with comparatively hard, compacted ends which detracted from the overall comfort and appearance of the pillows. Furthermore, such conventionally made batt-filled pillows tended to flatten out, and become deformed and misshapened with use, throughout their entire length.

In accordance with one aspect of the present invention, a batt-filled pillow is provided which overcomes the aforesaid disadvantages of conventional batt-filled pillows and which, moreover, achieves this objective with less material than would be required to fabricate a conventional batt-filled pillow of equal size and weight. Briefly, the pillow of the present invention comprises an unique pillow batt formed of a loosely integrated mat consisting of a plurality of superimposed layers of a sheet or web of soft, resilient, compressible material, desirably rolled upon itself, and encased in a pillow tick. The mat from which the batt is formed advantageously has at least some layers of the web terminating at a point within the batt, removed from the outer extremities thereof, to provide a greater number of layers of the web at the central portion of the batt than at its outer extremities. This arrangement of layers imparts a greater fullness to the central portion of the pillow and materially enhances the ability of the pillow to resist compacting, thereby giving the pillow substantially improved durability.

In accordance with the method aspects of the present invention, folding and/or lumping of the ends of the batt which, as indicated hereinabove, is a common problem in the fabrication of conventional batt-filled pillows, substantially is eliminated. This result is attained by a novel procedure which may be conveniently described as building the pillow tick around the pillow batt. This procedure includes the steps of forming a pillow batt, as briefly outlined hereinabove, and placing it on a sheet of suitable ticking material which has been cut to desired dimensions. A second sheet of the ticking material is then superimposed on the exposed side of the batt, and the opposed free margins of the sheets are secured together, as by stitching, to encase the batt in the tick formed from the two sheets. The method effectively avoids the stuffing or ramming operation heretofore employed to introduce

2

the batt into the pillow tick. Furthermore, due to the fact that the batt, as formed in accordance with the practice of this invention, is of reduced density at its ends, that is, has fewer layers of the web at its extremities that is the case with conventionally formed batts of the type here under consideration, compacting of the ends of the batt by reason of forces exerted thereon by the pillow tick is minimized. The pillow thus produced has a substantially uniform, smooth, barrel shape, and has essentially the same soft and comfortable feel throughout its length.

The materials utilized in forming the web for the batt incorporated in the pillows of the present invention are numerous and variable. They may be natural or synthetic in origin, and desirably are non-woven and fibrous or filamentary in character. The individual fibers or filaments of the material of the web advantageously should possess an inherent resiliency due to a curvature impressed upon them either during their natural development or during processing so that a random distribution of the fibers or filaments will produce a web of desired dimensions which is compressible and resilient. An especially desirable web can be produced from a synthetic fiber sold under the trademark "Dacron" (E. I. du Pont de Nemours & Company) made by the condensation of dimethyl terephthalate and ethylene glycol, and which is sold as "Dacron" fiberfill for pillows. This material is obtainable in bale form and advantageously is garnetted, in any manner known in the art, into a cross-lapped web of predetermined length, width and thickness, and then processed to attain the objectives of the present invention.

Referring now to the drawing, in which an illustrative embodiment of a pillow, made in accordance with the practice of this invention, in various stages of its fabrication is shown:

FIG. 1 is a view in perspective of an embodiment of a rolled batt utilized in making the pillow;

FIG. 2 is a view in perspective illustrating a method of enclosing the batt of FIG. 1 in a pillow tick;

FIG. 3 is a fragmentary enlarged view in perspective illustrating the position of the various layers of the web from which the mat is formed;

FIG. 4 is an end view in schematic form of the mat illustrated in FIG. 3; and

FIG. 5 is a side view in elevation of an embodiment of a finished pillow made in accordance with the practice of the present invention.

The objectives of this invention are attained by providing a web of predetermined length and width, desirably in the form of a thin, unitary sheet of intermingled fibers, and folding it upon itself in a unique manner until a three dimensional mat of the desired size and weight is obtained. As shown in FIGS. 3 and 4 of the drawings, such a mat, designated generally at 10, is formed from a sheet or web 12 of the character indicated, and comprises a plurality of folds in tiered or superimposed relation with respect to one another. In folding the sheet 12 upon itself, more plies or layers of the sheet advantageously are provided centrally of the mat 10 than at the outer extremities or ends thereof. This result is achieved in accordance with the practice of the present invention by terminating certain of the folds inwardly of the outermost folds of the sheet forming the mat. Thus, as seen in the referred-to figures of the drawing, folds 16 terminate at a point inwardly removed from outermost folds 18 which, in the embodiment illustrated, define the width of the mat 10. The number of folds 16 in the mat is not critical, it being essential to the attainment of the objectives of this invention only that the number of plies or layers of the sheet be greatest at the central portion of the mat as defined by the folds 16 than at the

3

extremities of the mat as defined by folds 18. Stated differently, this arrangement of plies or layers produces a mat having a greater density at the central portion thereof than at the outer extremities or ends of the mat.

Folding of the sheet 12 to attain the result desired may be performed by hand or, more satisfactorily from an economic standpoint, especially in a mass production operation, by utilizing equipment designed for the purpose. Exemplary of such equipment is a device referred to in the trade as a lapper which, in association with a suitable shifting attachment, is capable of forming a mat, such as mat 10, on a conveyor or other suitable moving surface positioned beneath the lapper.

In utilizing the described mat to produce a pillow in accordance with the present invention, the mat 10 advantageously is rolled upon itself to form a substantially cylindrical batt 20 (see FIG. 1). The batt 20 is then placed on one panel of a pillow tick, designated generally at 22 in FIG. 2, which conveniently is formed of two sheets or panels 24—24 of a suitable ticking material such as cotton, cotton percale, or the like. The panels 24—24 desirably are stitched together along one of their opposed margins and then laid on a flat surface to receive the batt 20. After the batt has been positioned on one of the panels, the other panel is folded over the batt and the remaining free, opposed margins of the panels are secured together, as by stitching 26. When thusly enclosed in the tick, the ends of the batt are brought together by the compressive forces exerted thereon at the secured ends of the tick, and the pillow assumes a shape suggestive of that of a barrel as indicated in FIG. 5. Prior to encasing the batt in the pillow, the batt desirably can first be covered with a loosely woven liner 28 formed of cheesecloth or the like, as shown in FIG. 1. The use of such a liner serves to maintain the shape of the batt and facilitates the handling thereof.

While pillows produced in accordance with the practice of the present invention demonstrate a marked resistance to bulk loss over batt-filled pillows of standard construction, this characteristic, among other favorable properties of the pillows of this invention, can be enhanced and augmented by treating the mat 10 to provide it with a small quantity of a flexible non-tacky resinous substance, substantially uniformly distributed on one side thereof. In accordance with this practice, the mat 10 is rolled upon itself as indicated hereinabove in a manner to place the resinous substance carrying side of the mat in contact with the opposite, non-resinous substance carrying side of the mat. Thusly rolled, the mat is provided with an integral, resilient, interfacial resinous layer having spirally wound-spring-like properties serving to further increase the pillow's capability to resist pillow deforming forces without discomfort to the user.

The resinous substance utilized for this purpose desirably is in the form of a liquid resin or elastomer dispersion. The character of the dispersion should be such that, when dried or cured, it will be non-tacky and flexible. Contact of the fibers or filaments of the sheet or web 12 with the dispersion can be attained in accordance with conventional techniques and with standard equipment. From the standpoint of ease and efficiency, spray application of the dispersion is preferred. The liquid resin or elastomer will, in practice, penetrate somewhat below the surface of the mat but such penetration should advantageously not extend more than to a slight depth below said surface.

Various types of liquid resin or elastomer dispersions, and mixtures thereof, can be used to advantage. Exemplary of resin dispersions having utility for this purpose are those containing polyvinyl chloride, acrylic esters, cellulose esters, alkyds, and the like. Excellent results are attainable with a water-soluble acrylic resin available commercially under the trademark HA-16 (Rohm & Haas). An example of an elastomer dispersion having

4

utility for the purposes of this invention is an aqueous dispersion of a vulcanizable elastomer. The specific elastomer employed in such a dispersion can be either a natural rubber latex, a synthetic elastomer latex, or a reclaimed rubber dispersion. The rubber or synthetic elastomer dispersion can be compounded with well known ingredients to facilitate the application and curing of the elastomer. Water may be added to secure the required consistency for spraying. Specific examples of elastomers which can be utilized include butadiene-styrene dispersions, neoprene rubber dispersions, and the like.

The quantity of resinous substance required to achieve the desired result is small, ranging from about 3% to 15%, usually 5% to 10%, of the total weight of the pillow batt. The resin or elastomer dispersion desirably is applied in the form of a fine spray to one surface only of the mat, the objective sought being to achieve an accumulation of the dispersion at the cross-points or intersections of the intermingled fibers at the surface of the mat whereby, when dried, or cured, the dispersion will form minute nodules which effectively lock the fibers or filaments together. This has the effect of imparting an integrated character to the dispersion-sprayed surface of the mat giving it mechanical properties noticeably different from those of the non-sprayed portions of the mat. While these differences can be detected by running one's hand across the dispersion-contacted surface of the mat, or by gently tugging at the surface fibers to separate them, except for the minute nodules, detectable only upon close examination, at the cross-points or intersections of the fibers, the sprayed surface of the mat, generally speaking, is not visibly different from the unsprayed surface thereof.

The extent to which the dispersion penetrates the mat is variable, being dependent, in the main, upon the viscosity of the dispersion and the density, or porosity, of the sheet or web 12. By way of illustration, a resin dispersion containing HA-16 (Rohm & Haas), when applied to one surface of a mat formed of "Dacron" fiberfill having a thickness of from about 2 to 4 inches, and a weight of approximately 5 ounces per running yard for a 24 inch mat width, will form the hereinabove described nodules to a depth in the sprayed-surface of the mat varying from about $\frac{1}{8}$ inch to about $\frac{1}{4}$ inch, more or less.

Pillows fabricated from a batt formed in accordance with a particularly advantageous embodiment of the practice of the present invention have of the order of 20%, or more, batt material at the central portion thereof than do conventionally constructed pillows of the same size and weight. This greater fullness of the pillows of this invention enables them to achieve substantially the same effect as would be obtained with a conventional pillow of the next greater size and batt weight specifications. Thus, for example, a pillow having a finished tick size of 20" x 26" containing a "Dacron" fiberfill batt, formed in accordance with the teachings of the present invention, having a width of approximately 24" and a length of approximately 12', weighing approximately 20 ounces, will have substantially the same fullness and comfort-feel, centrally of the ends of the pillow, as a conventional pillow having a finished tick size of 21" x 27", containing a batt formed of the same material having a width of approximately 25" and a length of approximately 13', weighing 22 ounces. In the example given, this represents a savings of about 10% in the amount of material required for forming the batt.

While the pillow of the present invention has been described and illustrated with reference to its fabrication by the utilization of a unitary sheet or web of intermingled fibers folded upon itself, it is to be understood that the batt can be formed of a plurality of smaller, separate sheets or webs pre-cut to the desired length and width, and superimposed one upon the other to provide a greater number of layers of the web material at the central portion of the pillow than at the ends, as described. It should also be understood that the present invention contemplates the formation of pillows having shapes different

from the one illustrated and described. Thus, for instance, a substantially square- or rectangular-shaped pillow incorporating the advantages of the present invention can be fabricated by forming the tiers or layers in such shapes and encasing them in a suitably shaped tick.

What is claimed is:

1. A pillow comprising a pillow tick and a pillow batt enclosed therein, the pillow batt being formed of a plurality of superimposed layers of soft, resilient, compressible material in the form of a web of intermingled fibers, at least some of the layers of the batt terminating at a point within the batt removed from the outer extremities thereof to provide a greater number of layers of said material at the central portion of the batt than at the outer extremities of the batt thereby to impart greater fullness to the central portion of the pillow while substantially overcoming excessive compacting of the extremities of the batt by the pillow tick.

2. A pillow comprising a pillow tick and a pillow batt enclosed therein, the pillow batt being formed of a plurality of superimposed folds of a web of intermingled fibers of a soft, resilient, compressible material, at least some of the folds of the batt terminating at a point within the batt removed from the outer extremities thereof to provide a greater number of folds of said material at the central portion of the batt thereby to impart greater fullness to the central portion of the pillow while substantially overcoming excessive compacting of the extremities of the batt by the pillow tick.

3. A pillow comprising a pillow tick and a pillow batt enclosed therein, the pillow batt being formed from a three dimensional mat in sheet-like form rolled upon itself, said mat consisting of a plurality of superimposed layers of soft, resilient, compressible material in the form of a web of intermingled fibers, at least some of the layers of the batt terminating at a point within the batt removed from the outer extremities thereof to provide a greater number of layers of said material at the central portion of the batt than at the outer extremities of the batt thereby to impart greater fullness to the central portion of the pillow while substantially overcoming excessive compacting of the extremities of the batt by the pillow tick.

4. A pillow comprising a pillow tick and a pillow batt enclosed therein, the pillow batt being formed from a unitary three dimensional mat in sheet-like form rolled upon itself, said mat being formed of a plurality of superimposed folds of a unitary web of intermingled fibers of soft, resilient, compressible material, at least some of the folds of the batt terminating at a point within the batt removed from the outer extremities thereof to provide a greater number of folds of said material at the central portion of the batt than at the outer extremities of the batt thereby to impart greater fullness to the central portion of the pillow while substantially overcoming excessive compacting of the extremities of the batt by the pillow tick.

5. A pillow as claimed in claim 4, characterized in that the compressible material is an ethylene glycol terephthalate polyester fiberfill.

6. A method of making a batt for a pillow comprising placing a plurality of layers of soft, resilient, compressible material in the form of a web of intermingled fibers in superimposed relation with respect to one another to form a three-dimensional mat of appreciable thickness, at least some of said layers being narrower than others of said layers and being placed in superimposed relation in the formation of the mat in a manner to provide a greater number of layers of said material at the central portion of the batt than at the outer extremities thereof.

7. A method of making a batt for a pillow comprising folding a sheet formed of a web of intermingled fibers of soft, resilient, compressible material upon itself to form a three-dimensional mat of appreciable thickness, the folds of said sheet being superimposed one on top of the other in a manner to provide a greater number of folds at the

central portion of the mat than at the outer extremities thereof, and rolling the mat thus formed upon itself to form a pillow batt.

8. A method of making a pillow comprising placing a plurality of layers of soft, resilient, compressible material in the form of a web of intermingled fibers in superimposed relation with respect to one another to form a three-dimensional batt of appreciable thickness, at least some of said layers being narrower than others of said layers and being placed in superimposed relation in the formation of the batt in a manner to provide a greater number of layers of said material at the central portion of the batt than at the outer extremities thereof, and enclosing the batt in a pillow tick.

9. A method of making a pillow comprising placing a plurality of layers of soft, resilient, compressible material in the form of a web of intermingled fibers in superimposed relation with respect to one another to form a three-dimensional mat of appreciable thickness, at least some of said layers being narrower than others of said layers and being placed in superimposed relation in the formation of the mat in a manner to provide a greater number of layers of said material at the central portion of the mat than at the outer extremities thereof, rolling the mat upon itself to form a pillow batt, encasing the batt in a loosely woven batt-retaining cover of a size sufficient to prevent excessive compacting of the batt therein, and enclosing the thus encased batt in a pillow tick.

10. A method of making a pillow comprising folding a sheet formed of a web of intermingled fibers of soft, resilient, compressible material upon itself to form a three-dimensional mat of appreciable thickness, the folds of said sheet being superimposed one on top of the other in a manner to provide a greater number of folds at the central portion of the mat than at the outer extremities thereof, rolling the mat thus formed upon itself to form a pillow batt, and encasing the rolled batt in a pillow tick.

11. A method of making a pillow comprising folding a sheet formed of a web of intermingled fibers of soft, resilient, compressible material upon itself to form a three-dimensional mat of appreciable thickness, the folds of said sheet being superimposed one on top of the other in a manner to provide a greater number of folds at the central portion of the mat than at the outer extremities thereof, rolling the mat thus formed upon itself to form a pillow batt, encasing the batt in a loosely woven batt-retaining cover of a size sufficient to prevent excessive compacting of the batt therein, and enclosing the thus encased batt in a pillow tick.

12. A method of making a pillow comprising folding a sheet formed of a web of intermingled fibers of soft, resilient, compressible material upon itself to form a three-dimensional mat of appreciable thickness, the folds of said sheet being superimposed one on top of the other in a manner to provide a greater number of folds at the central portion of the mat than at the outer extremities thereof, rolling the mat thus formed upon itself to form a pillow batt, placing the rolled batt on one panel of pillow ticking, superimposing a second panel of pillow ticking on the exposed side of said batt, and securing together the free margins of said sheets to enclose the batt therein.

13. A batt for a pillow comprising a plurality of layers of soft, resilient, compressible material in the form of a web of intermingled fibers in superimposed relation with respect to one another to form a three-dimensional batt of appreciable thickness, at least some of said layers being narrower than others of said layers and being placed in superimposed relation in the formation of the batt in a manner to provide a greater number of layers of said material at the central portion of the batt than at the outer extremities thereof.

14. A batt for a pillow comprising a unitary sheet formed of a web of intermingled fibers of soft, resilient, compressible material folded upon itself to form a three-dimensional batt of appreciable thickness, the folds of

7

said sheet being superimposed one on top of the other in a manner to provide a greater number of folds at the central portion of the batt than at the outer extremities thereof.

15. A pillow comprising a pillow tick and a pillow batt enclosed therein, the pillow batt being formed from a three-dimensional mat in sheet-like form, said mat consisting of a plurality of superimposed layers of soft, resilient, compressible material in the form of a web of intermingled fibers, at least some of the layers of the batt terminating at a point within the batt removed from the outer extremities thereof to provide a greater number of layers of said material at the central portion of the batt than at the outer extremities of the batt thereby to impart greater fullness to the central portion of the pillow while substantially overcoming excessive compacting of the extremities of the batt by the pillow tick, said mat having a small quantity of a flexible, non-tacky resinous substance substantially uniformly distributed on the outer surface thereof and being wound upon itself whereby the resinous substance forms an integral, resilient, interfacial layer in the batt serving to comfortably resist pillow-deforming forces.

3

16. A method of making a pillow comprising folding a sheet formed of a web of intermingled fibers of soft, resilient, compressible material upon itself to form a three-dimensional mat of appreciable thickness, the folds of said sheet being superimposed one on top of the other in a manner to provide a greater number of folds at the central portion of the mat than at the outer extremities thereof, applying a small quantity of a resinous substance substantially uniformly on the outer surface thereof, rolling the mat thus formed upon itself to form a pillow batt, and encasing the rolled batt in a pillow tick.

References Cited by the Examiner

UNITED STATES PATENTS

1,560,722	11/1925	Fowler	156—184 X
1,988,843	1/1935	Heldenbrand	161—136
2,001,709	5/1935	Davidson	156—227 X
2,368,930	2/1945	Lenz	5—355

20 FRANK B. SHERRY, *Primary Examiner*.

A. M. CALVERT, *Assistant Examiner*.