

DESCRIPTION

TITLE OF THE INVENTION

MATTRESS, MANUFACTURING METHOD, AND
DISPOSAL METHOD

5

TECHNICAL FIELD

[0001] The present disclosure relates to a
mattress, a manufacturing method, and a disposal
method.

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BACKGROUND ART

[0002] Mattresses in which coil springs are
housed in pouch-shaped bodies that define pocket
spaces are known. In this type of mattress, a
15 technique in which the side portions of pouch-shaped
bodies provided for respective coil springs are
bonded together, perforations are provided in the
circumferential direction of the pouch-shaped
bodies, and the upper surfaces of the pouch-shaped
20 bodies are bonded to the lower surface of a mounting
unit with adhesives is known (see Patent Document 1,
for example). In this technique, the coil springs
can be readily removed by pulling the mounting unit
upward such that the perforations of the pouch-
25 shaped bodies are broken so as to open the upper
ends of the pouch-shaped bodies.

RELATED-ART DOCUMENTS

PATENT DOCUMENTS

[0003]

30 Patent Document 1: Japanese Laid-open Patent
Publication No. 2012-95785

SUMMARY OF THE INVENTION

PROBLEM TO BE SOLVED BY THE INVENTION

[0004] However, in a conventional technique as described above, pouch-shaped bodies need to be individually formed for respective coil springs by cutting a single fabric, thus causing manufacturing costs to increase. In addition, since the plurality of pouch-shaped bodies are individually formed, an assembly error is likely to occur when the plurality of pouch-shaped bodies are arranged. If perforations of some pouch-shaped bodies are not broken due to such an assembly error, the entire pouch-shaped bodies may be affected and all of the perforations may be unable to be broken at the same time in a desired manner.

[0005] On the other hand, if a plurality of pocket spaces are defined by one fabric without cutting the fabric, some of the above-described problems related to the individual pouch-shaped bodies can be solved. However, since the plurality of pocket spaces are continuous and connected by the one fabric, it may be difficult to form perforations that allow the plurality of pocket spaces to be readily opened.

[0006] In view of the above, it is an object of the present disclosure to provide a mattress in which a plurality of pocket spaces are defined by one fabric without cutting the fabric, and perforations that allow the plurality of pocket spaces to be readily opened are provided in the fabric.

MEANS TO SOLVE THE PROBLEM

[0007] According to an aspect, a mattress with

pocket coils is provided. The mattress includes coil springs forming the pocket coils; a first fabric defining pocket spaces in which the respective coil springs are housed; and a second
5 fabric extending in a planar shape so as to cover an entirety of the pocket spaces. The first fabric is provided for each of rows of the pocket spaces. The first fabric has perforations on both sides with respect to a center of each of the pocket spaces.
10 The perforations are continuous in a first direction. The second fabric is fixed to a portion between the two perforations of the first fabric. The portion is between the two perforations in a second direction intersecting the first direction.
15 The two perforations are configured to be broken in response to the portion of the first fabric being pulled in a direction away from the pocket spaces.

EFFECTS OF THE INVENTION

20 **[0008]** According to the present disclosure, a mattress is provided in which a plurality of pocket spaces are defined by one fabric without cutting the fabric, and perforations that allow the plurality of pocket spaces to be readily opened are provided in
25 the fabric.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

[FIG. 1] FIG. 1 is a perspective view of a mattress
30 in use;

[FIG. 2] FIG. 2 is a cross-sectional view of the mattress according to a first embodiment and is a schematic view illustrating a cross-sectional

structure of the mattress;

[FIG. 2A] FIG. 2A is a schematic view illustrating a cross-sectional structure of a mattress according to another embodiment;

5 [FIG. 3] FIG. 3 is a drawing schematically illustrating the arrangement of coil springs of a spring coil layer in a top view;

[FIG. 4A] FIG. 4A is a drawing illustrating a non-woven fabric defining pocket spaces in which
10 respective coil springs are housed;

[FIG. 4B] FIG. 4B is a drawing illustrating non-woven fabrics defining pocket spaces in which respective coil springs are housed;

[FIG. 4C] FIG. 4C is a drawing illustrating a non-woven fabric in a roll shape;

[FIG. 5] FIG. 5 is a plan view of a non-woven fabric defining pocket spaces in which respective coil springs in one row are housed;

[FIG. 6] FIG. 6 is a drawing illustrating a method
20 for defining pocket spaces from a non-woven fabric according to the first embodiment;

[FIG. 7] FIG. 7 is a side view of three pocket spaces of the plurality of pocket spaces in the one row as viewed in the Y direction according to the
25 first embodiment;

[FIG. 8] FIG. 8 is a side view of three pocket spaces of a plurality of pocket spaces in three rows as viewed in the X direction;

[FIG. 9] FIG. 9 is a schematic cross-sectional view
30 of the pocket spaces taken through line A-A of FIG. 7;

[FIG. 10] FIG. 10 is a schematic cross-sectional view of the pocket spaces taken through line B-B of

FIG. 7;

[FIG. 11] FIG. 11 is a drawing illustrating a disposal method, and is a perspective view of pocket spaces whose upper ends are opened;

5 [FIG. 12] FIG. 12 is a cross-sectional view of a mattress 20B according to a second embodiment, and is a schematic view illustrating a cross-sectional structure of the mattress;

[FIG. 13] FIG. 13 is a side view of three pocket spaces of a plurality of pocket spaces in one row of the mattress according to the second embodiment, as viewed in the Y direction;

[FIG. 14] FIG. 14 is a side view of three pocket spaces of a plurality of pocket spaces in three rows of the mattress according to the second embodiment, as viewed in the X direction;

[FIG. 15] FIG. 15 is a perspective view of a pocket coil layer as viewed from the bottom side;

[FIG. 16] FIG. 16 is a drawing illustrating the positions of cutting lines;

[FIG. 17] FIG. 17 is a drawing (part 1) illustrating a disposal method for the mattress according to the second embodiment; and

[FIG. 18] FIG. 18 is a drawing (part 2) illustrating the disposal method for the mattress according to the second embodiment.

MODE FOR CARRYING OUT THE INVENTION

[0010] In the following, embodiments will be described in detail with reference to the accompanying drawings. Note that dimensional ratios in the drawings are merely examples and are not limited thereto, and the shapes and the like of

components in the drawings may be exaggerated for the sake of description. In the specification, one fabric such as one non-woven fabric is one (a single) fabric in a finished product state, and is
5 meant to include a multilayer structure as long as layers are integrated.

[0011] FIG. 1 is a perspective view of a mattress 20 in use. In FIG. 1, an X-axis, a Y-axis, and a Z-axis are defined in a right-handed coordinate
10 system. In the following description, the vertical direction (Z direction) of the mattress 20 corresponds to the top-bottom direction of the mattress 20 in use. The mattress 20 is a bedding, and is placed and used on a bed frame 7. The top
15 and the bottom of the mattress 20 can be flipped; however, the top and the bottom of the mattress 20 are set based on the state illustrated in FIG. 1 unless otherwise specifically noted. For a mattress that is single-sided and cannot be flipped (see a
20 mattress 20A in FIG. 2A, for example), a logo or the like may be attached to a side portion of the mattress so that a user can understand which side of the mattress faces up.

[0012] FIG. 2 is a cross-sectional view of the
25 mattress 20 and is a schematic view illustrating a cross-sectional structure of the mattress 20. FIG. 3 is a drawing schematically illustrating the arrangement of coil springs 223a and 223b of a spring coil layer 223 in a top view. In FIG. 3, the
30 X direction (an example of a first direction) and the Y direction (an example of a second direction) are defined as in FIG. 1, and the lengthwise direction of the mattress 20 corresponds to the X

direction.

[0013] In the example illustrated in FIG. 2, the mattress 20 includes a quilting part 21 (hereafter also referred to as an "upper quilting part 21" for distinction), a padding part 22, and a quilting part 23 (hereafter also referred to as a "lower quilting part 23" for distinction).

[0014] The upper quilting part 21 includes, from the top, a surface fabric 211, artificial cotton 212, soft polyurethane 213, and a non-woven fabric 214. Note that the configuration of the upper quilting part 21 is not limited thereto, and other materials may be added or some materials may be omitted.

[0015] The surface fabric 211 may be, for example, a knitted fabric having antibacterial, deodorant and anti-mite functions. The surface fabric 211 preferably has a density of 180 g/m² or more. The surface fabric 211 may have a thickness of, for example, 1 mm.

[0016] The artificial cotton 212 may have a density of, for example, approximately 140 g/m². The artificial cotton 212 may have a thickness of, for example, 10 mm.

[0017] The soft polyurethane 213 may have a density of, for example, D28. The soft polyurethane 213 may have a thickness of, for example, 15 mm.

[0018] The non-woven fabric 214 may have a density of, for example, approximately 40 g/m². The non-woven fabric 214 may have a thickness of, for example, 0.25 mm.

[0019] The padding part 22 includes, from the top, a non-woven fabric 220, soft polyurethane 221,

a non-woven fabric 222, the spring coil layer 223, a non-woven fabric 224, soft polyurethane 225, and a non-woven fabric 226.

[0020] The non-woven fabric 220 may have, a
5 density of, for example, approximately 40 g/m². The non-woven fabric 220 may have a thickness of, for example, 0.25 mm.

[0021] The soft polyurethane 221 may have a density of, for example, D21. The soft polyurethane
10 221 may have a thickness of, for example, 20 mm. Projections and recesses may be formed on the upper side of the soft polyurethane 221. Accordingly, a body pressure dispersion value can be improvised.

[0022] The non-woven fabric 222 may have a
15 density of, for example, approximately 80 g/m². The non-woven fabric 222 may have a thickness of, for example, 0.25 mm.

[0023] In the spring coil layer 223, the plurality of coil springs 223a and 223b forming
20 respective pocket coils are arranged in a parallel manner. Rows of coil springs 223a and 223b extend in the lengthwise direction (X direction) of the mattress 20 and contact one another in the widthwise direction (Y direction) of the mattress 20. The
25 number of the coil springs 223a and 223b in each of the rows may be the same. In a modified example, the plurality of coil springs 223a may be arranged in an alternating manner.

[0024] In the present embodiment, as an example,
30 the first to seventh rows are defined in order from the upper side in the Y direction (widthwise direction) of FIG. 3. In this example, the third to fifth rows are constituted by the plurality of coil

spring 223a, and the other rows are constituted by the plurality of coil springs 223b. With this configuration, sleeping comfort can be effectively improved by utilizing the two types of coil springs 223a and 223b. However, in a modified example, one type of coil springs or three or more types of coil springs may be utilized.

[0025] Each of the coil springs 223a of the spring coil layer 223 has a wire diameter (steel wire diameter) of 1.8 mm and a coil diameter of 62 mm. Further, the number of turns of each of the coil springs 223a of the spring coil layer 223 is 5, and the coil height of each of the coil springs 223a is 170 mm in free length and is 100 mm when contained in a pocket. Each of the coil springs 223a may have a barrel shape.

[0026] Further, each of the coil springs 223b of the spring coil layer 223 has a wire diameter (steel wire diameter) of 2.2 mm and a coil diameter of 62 mm. Further, the number of turns of each of the coil springs 223b of the spring coil layer 223 is 5.5, and the coil height of each of the coil springs 223b is 140 mm in free length and is 100 mm when contained in a pocket. Each of the coil springs 223b may have a barrel shape.

[0027] The non-woven fabric 224 may have a density of, for example, approximately 80 g/m². The non-woven fabric 224 may have a thickness of, for example, 0.25 mm.

[0028] The soft polyurethane 225 may have a density of, for example, D21. The soft polyurethane 225 may have a thickness of, for example, 15 mm.

[0029] The non-woven fabric 226 may have a

density of, for example, approximately 40 g/m². The non-woven fabric 226 may have a thickness of, for example, 0.25 mm.

5 **[0030]** The lower quilting part 23 includes, from the top, a non-woven fabric 231, soft polyurethane 232, artificial cotton 233, and a surface fabric 234. Note that the configuration of the lower quilting part 23 is not limited thereto, and other materials may be added or some materials may be
10 omitted.

[0031] The non-woven fabric 231 may have a density of, for example, approximately 40 g/m². The non-woven fabric 231 may have a thickness of, for example, 0.25 mm.

15 **[0032]** The soft polyurethane 232 may have a density of, for example, D28. The soft polyurethane 232 may have a thickness of, for example, 15 mm.

[0033] The artificial cotton 233 may have a density of, for example, approximately 140 g/m².
20 The artificial cotton 233 may have a thickness of, for example, 10 mm.

[0034] The surface fabric 234 may be, for example, a knitted fabric having antibacterial, deodorant and anti-mite functions. The surface
25 fabric 234 preferably has a density of 180 g/m² or more. The surface fabric 234 may have a thickness of, for example, 1 mm.

[0035] Note that the mattress 20 having a specific configuration is illustrated in FIG. 2, but
30 the mattress 20 may have any configuration as long as the mattress 20 includes the spring coil layer 223, and the spring coil layer 223 has a configuration as will be described later. For

example, the mattress 20A having a configuration as illustrated in FIG. 2A may be used. In this case, a needle-punched material 232A is used instead of the soft polyurethane 232. The mattress 20A having such
5 a configuration is suitable for a case where the mattress is single-sided and cannot be flipped (that is, when one side of the mattress is always the top side, which is the positive Z side).

[0036] Next, the spring coil layer 223 will be
10 described in detail with reference to FIG. 4A and the subsequent drawings. In the following, the configuration of rows of coil springs 223a will be described as a representative example; however, the same is substantially true of rows of coil springs
15 223b.

[0037] FIG. 4A through FIG. 4C are drawings illustrating non-woven fabrics 250 (an example of a first fabric) defining pocket spaces S1 in which respective coil springs 223a are housed.

[0038] A plurality of non-woven fabrics 250 may
20 be formed from a non-woven fabric sheet 25 that has a rectangular shape when unwound. For example, perforations 252 of a non-woven fabric 250 may be formed by a perforation forming blade 400 (one
25 perforation forming blade is illustrated in FIG. 4A) when the non-woven fabric sheet 25, wound in a roll shape as illustrated in FIG. 4A, is unwound. The two perforations 252 are formed in parallel as illustrated in FIG. 4A. The perforation forming
30 blade 400 may have a tooth length of approximately 3 mm, for example, and teeth may be periodically arranged at intervals of 1 mm along the circumferential direction of the perforation forming

blade 400. The non-woven fabric 250 in which the perforations 252 are formed as described above may be wound in a roll shape and managed as illustrated in FIG. 4C. In this case, the roll direction of the non-woven fabric sheet 25 may correspond to the X direction illustrated in FIG. 3 and the like.

[0039] Alternatively, as illustrated in FIG. 4B, a plurality of non-woven fabrics 250 may be formed by cutting the one non-woven fabric sheet 25 into the plurality of non-woven fabrics 250 while simultaneously forming perforations 252 in each of the non-woven fabrics 250. Cutting the non-woven fabric sheet 25 and forming the perforations 252 may be performed when the non-woven fabric sheet 25 wound in a roll shape is unwound. Accordingly, an efficient manufacturing process can be achieved as compared to when a process for forming the perforations 252 is separately provided. Note that when the one non-woven fabric sheet 25 is cut into the plurality of non-woven fabrics 250, the non-woven fabric sheet 25 may be cut only along the X direction corresponding to the unwinding direction, and cutting the non-woven fabric sheet 25 in the Y direction (the cross direction) may be performed separately. FIG. 4B schematically illustrates the perforations 252 and cut lines 253 formed in the one non-woven fabric sheet 25 from which four non-woven fabrics 250 are formed. In this case as well, the non-woven fabrics 250, which are cut and in which the perforations 252 are formed, may be wound in a roll shape and managed or transported as illustrated in FIG. 4C.

[0040] Note that, as described above, if the

length in the X direction of the non-woven fabric sheet 25, wound in a roll shaped after the perforations 252 are formed, corresponds to the lengths of the plurality of non-woven fabrics 250, each of the non-woven fabrics 250 may be cut along the Y direction when used such that each of the non-woven fabrics 250 has a length of one woven fabric in the X direction.

[0041] FIG. 5 is a plan view of a non-woven fabric 250 defining pocket spaces S1 in which respective coil springs 223a (11 coil springs 223a in FIG. 3) in one row are housed. FIG. 5 illustrates the non-woven fabric 250 in an unwound state before pocket spaces S1 are formed. In FIG. 5, a dash-dot line L1 represents the center line of the non-woven fabric 250 in the Y direction, and hatched portions at the upper and lower ends in FIG. 5 correspond to a welded portion 258, which will be described later. FIG. 6 is a drawing illustrating a method of defining pocket spaces S1 from the non-woven fabric 250. FIG. 7 is a side view of three pocket spaces S1 of the plurality of pocket spaces S1 in the one row as viewed in the Y direction. In Fig. 7, for the sake of illustration, coil springs 223a in the pocket spaces S1 defined by the non-woven fabric 250 are schematically illustrated in a transparent view. In FIG. 7 (also FIG. 8 and FIG. 9 below), welded portions 256 and 258 and adhesives 80, 82, and 84 are schematically illustrated by hatching. FIG. 8 is a side view of pocket spaces S1 in three adjacent rows in the Y direction, as viewed in the X direction. In FIG. 8, for the sake of illustration, coil springs 223a in pocket spaces S1

defined by the non-woven fabric 250 are schematically illustrated in a transparent view. In FIG. 7 and FIG. 8, the non-woven fabrics 222 and 224 located above and below the pocket spaces S1 are also illustrated. FIG. 9 is a schematic cross-sectional view of the pocket spaces S1 taken through line A-A of FIG. 7. FIG. 10 is a schematic cross-sectional view of the pocket spaces S1 taken through line B-B of FIG. 7. Note that the line B-B illustrated in FIG. 7 is slightly offset from a perforation 252 for the sake of illustration, but is a line along the perforation 252. FIG. 11 is a drawing illustrating a disposal method, and is a perspective view of pocket spaces S1 whose upper ends are opened.

[0042] As illustrated in FIG. 5, the non-woven fabric 250 has two perforations 252 parallel to the X direction. In a state in which the non-woven fabric 250 is unwound, the perforations 252 are spaced apart from each other by a predetermined distance in the Y direction according to the size of a pocket space S1. Specifically, the distance between the perforations 252 is significantly greater than the outer diameter (the diameter of the largest portion) of a coil spring 223a.

[0043] When coil spring assemblies (assemblies including non-woven fabrics 250 and coil springs 223a integrated by welded portions 256 and 258) in respective rows are formed, all coil springs 223a in one row are set between the perforations 252 such that the central axis of each of the coil springs 223a is perpendicular to the surface of the one non-woven fabric 250 as schematically illustrated in

FIG. 6. At this time, the coil springs 223a are positioned such that a line (see a dash-dot line L2 in FIG. 6) connecting the central axes of the coil springs 223a is approximately at the center (center in Y direction) between the two perforations 252 of the one non-woven fabric 250.

[0044] From the state in which the non-woven fabric 250 and the plurality of coil springs 223a are set as described above, the non-woven fabric 250 is folded such that both end portions on the Y-axis side of the non-woven fabric 250 overlap each other. In this manner, the plurality of coil springs 223a are wrapped with the non-woven fabric 250. At this time, the perforations 252 that are continuous in the X direction are located on both sides in the Y direction of each of the coil springs 223a.

[0045] Then, the both end portions in the Y direction of the non-woven fabric 250 are welded together to form a welded portion 258. That is, the non-woven fabric 250 in one row has a welded portion 258 (an example of a second welded portion), where the both end portions are welded, on one side portion in the Y direction of each of pocket spaces S1. In addition, a welded portion 256 (an example of a first welded portion) is formed so as to separate two pocket spaces S1 that are adjacent to each other in the X direction and in which coil springs 223a are housed. Note that a welded portion 256 may be formed at each end portion of the non-woven fabric 250 in the X direction. In the example illustrated in FIG. 6, 256-1 to 256-3 indicate portions that are welded together as welded portions 256 of the non-woven fabric 250. In this case, two

portions 256-1 are welded together to form one welded portion 256, two portions 256-2 are welded together to form another welded portion 256, and two portions 256-3 are welded together to form yet
5 another welded portion 256.

[0046] In coil spring assemblies (assemblies including non-woven fabrics 250 and coil springs 223a integrated by welded portions 256 and 258) in respective rows formed as described above, the side
10 portions in the Y direction of adjacent coil spring assemblies are joined with adhesives 80 as illustrated in FIG. 8. Further, as illustrated in FIG. 7 and FIG. 8, the coil spring assemblies in the respective rows are joined to the upper-side non-
15 woven fabric 222, extending in the XY plane, with adhesives 82, and are joined to the lower-side non-woven fabric 224, extending in the XY plane, with adhesives 84. Note that the non-woven fabric 222 is common to all of the coil springs 223a and 223b of
20 the one mattress 20, and is bonded (fixed) to the non-woven fabrics 250 defining pocket spaces S1 in the rows. By providing the non-woven fabric 222 as described, even when a local load (an external load) is applied between pocket spaces S1 in a direction
25 perpendicular to the surface of the mattress 20, the mattress 20 can be prevented from locally sinking (a portion between pocket spaces S1 can be prevented from sagging). The same applies to the non-woven fabric 224.

30 **[0047]** According to the present embodiment, one non-woven fabric 250 can be utilized for each row of pocket spaces S1 as described above. Therefore, there is no need to cut a non-woven fabric 250 for

each pocket space S1, thereby greatly improving productivity.

[0048] Further, according to the present embodiment, as described above, the non-woven fabric 5 250 for one row has two perforations 252 that are continuous in the X direction. The perforations 252 are located on both sides in the Y direction of each of pocket spaces S1 in the one row. Further, as illustrated in FIG. 10, the two perforations 252 are 10 located substantially at approximately the same height, and are continuous in the X direction so as to surround each of coil springs 223a in a top view. The perforations 252 are formed at a pitch so as not to be broken by the repulsive force of each of the 15 coil springs 223a. In the present embodiment, as described above, holes, having a length of approximately 3 mm in the X direction, of the perforations 252 are periodically arranged at intervals of 1 mm (that is, at a pitch of 4 mm).

20 **[0049]** In the present embodiment, the non-woven fabric 222 is bonded to the non-woven fabric 250 with the adhesives 82. Therefore, when the non-woven fabric 222 is pulled against the spring coil layer 223 in a direction in which the non-woven 25 fabric 222 is peeled from the spring coil layer 223 at a time of disposal of the mattress 20, a large force (significantly larger than the repulsive force of each of the coil springs 223a) is applied to the perforations 252 of the non-woven fabric 250. As a 30 result, the perforations 252 in each row are broken continuously. That is, the perforations 252 are broken in response to portions of the non-woven fabric 250 between the two perforations 252 in the Y

direction being pulled upward (that is, in a direction away from the pocket spaces S1). In this manner, according to the present embodiment, the upper ends of the pocket spaces S1 (above the perforations 252) in each row can be readily opened (see Fig. 11). In the following, work of peeling the non-woven fabric 222 from the spring coil layer 223 when disposing of the mattress 20 such that the perforations 252 of the non-woven fabric 250 are broken so as to open the upper ends of the pocket spaces S1 may be simply referred to as "non-woven fabric peeling work".

[0050] Further, according to the present embodiment, as described above, in a state in which the non-woven fabric 250 is unwound, the distance between the perforations 252 in the Y direction is greater than the outer diameter of each of the coil springs 223a. Therefore, as illustrated in FIG. 7 and FIG. 8, in a state in which the coil springs 223a are housed in the pocket spaces S1, the perforations 252 are formed at positions below the uppermost winding 2231 of each of the coil springs 223a, above the lowermost winding 2232 of each of the coil springs 223a, and offset upward relative to the center in the axial direction of each of coil springs 223a. For example, as illustrated in FIG. 7, the distance $\Delta 1$ between the upper surface of a corresponding pocket space S1 and each of the perforations 252 may be in a range from 12 mm to 18 mm. Accordingly, when the non-woven fabric 222 is pulled in a direction in which the non-woven fabric 222 is peeled from the spring coil layer 223 so as to break the perforations 252, portions above the

perforations 252 of the non-woven fabric 250 are less likely to be caught by the coil springs 223a. Note that, if portions of the non-woven fabric 250 above the perforations 252 are caught by the coil
5 springs 223a when the non-woven fabric 222 is pulled in a direction in which the non-woven fabric 222 is peeled from the spring coil layer 223 so as to break the perforations 252, part of the force that pulls the non-woven fabric 222 would be caught by the coil
10 springs 223a, and, by that amount, the force required to break the perforations 252 would be increased. Conversely, according to the present embodiment, the perforations 252 can be broken with a relatively low force, and thus, the workability of
15 opening the upper ends of the pocket spaces S1 (that is, workability of the non-woven fabric peeling work) can be improved.

[0051] If the perforations 252 are located below the centers in the axial direction of the coil
20 springs 223a, and portions of the non-woven fabric 250 above the perforations 252 are removed together with the non-woven fabric 222 by breaking the perforations 252, there would be a possibility that the portions above the perforations 252 of the non-
25 woven fabric 250 would be caught by the coil springs 223a. If portions of the non-woven fabric 250 are caught by coil springs 223a, workability would decrease. Conversely, according to the present embodiment, such inconvenience is unlikely to occur,
30 and the workability of opening the upper ends of the pocket spaces S1 (that is, the workability of the non-woven fabric peeling work) can be improved.

[0052] Further, according to the present

embodiment, as described above, the distance between the perforations 252 in the Y direction is greater than the outer diameter of each of the coil springs 223a in a state in which the non-woven fabric 250 is unwound. Therefore, in a state in which the upper ends of the pocket spaces S1 are opened, the coil springs 223a can be readily removed through the openings at the upper ends of the pocket spaces S1. That is, the workability of removing the coil springs 223a can be improved.

[0053] In the present embodiment, as illustrated in FIG. 7, the welded portion 256 is preferably formed along the vertical direction so as to terminate short of the perforations 252 in the vertical direction as illustrated in FIG. 7. In the present embodiment, the welded portion 256 formed between two pocket spaces S1 in the X direction is divided into three; however, the welded portion 256 may be divided into four or more or two or less. Further, the welded portion 256 formed between two pocket spaces S1 in the X direction may extend continuously in the vertical direction.

[0054] As described, in the present embodiment, the welded portion 256, which separates pocket spaces S1 that are adjacent to each other in the X direction, are disposed below the perforations 252. Therefore, the workability of breaking the perforations 252 can be improved as compared to when the perforations 252 are included in the welded portion 256 (that is, the perforations 252 are welded together with the welded portion 256). That is, areas of the non-woven fabric 250 above the perforations 252 (in the vertical direction) are

relatively small, and thus, if the areas above the perforations 252 are welded, there may be a possibility that the perforations 252 may be welded to each other in the Y direction. Conversely, according to the present embodiment, areas of the non-woven fabric 250 below the perforations 252 (in the vertical direction) are relatively large. Therefore, as illustrated in FIG. 10, by welding the areas below the perforations 252, the perforations 252 are unlikely to be welded to each other. That is, the possibility that the perforations 252 may be welded to each other in the Y direction can be reduced, while also securing necessary welding areas in the vertical direction. If the perforations 252 are welded to each other in the Y direction, an excessive force would be required to continuously break the perforations 252. According to the present embodiment, the possibility that an excessive force may be required to continuously break the perforations 252 due to the welded portion 256 can be reduced.

[0055] Further, in the present embodiment, as schematically illustrated in FIG. 8, the perforations 252 are located above the welded portion 258 where the both end portions in the Y direction of the non-woven fabric 250 are joined. Accordingly, the workability of breaking the perforations 252 can be improved as compared to when the perforations 252 are included in the welded portion 258 (that is, the perforations 252 are welded together with the welded portion 258). That is, the force required to break the perforations can be appropriately reduced.

[0056] Note that, in FIG. 4A and the subsequent drawings, one non-woven fabric 250 is utilized for each row of pocket spaces S1 arranged in the X direction; however, one non-woven fabric 250 may be
5 utilized for each row of pocket spaces S1 arranged in the Y direction. With such a configuration, in the description of FIG. 4A and the subsequent drawings (including the description FIG. 12 and the subsequent drawings), the X direction and the Y
10 direction are replaced with the Y direction and the X direction, respectively. Substantially the same effects can be obtained in this case as well.

[0057] Next, another embodiment will be described with reference to FIG. 12 and the subsequent
15 drawings. In the following description, the embodiment described above will be referred to as a "first embodiment", and an embodiment described with reference to FIG. 12 and the subsequent drawings will be referred to as a "second embodiment". In
20 the second embodiment, components that may be the same as those of the above-described first embodiment may be denoted by the same reference numerals, and the description thereof may be omitted.

[0058] FIG. 12 is a cross-sectional view of a
25 mattress 20B according to the present embodiment, and is a schematic view illustrating a cross-sectional structure of the mattress 20B. FIG. 13 is a side view of three pocket spaces S1 of a plurality
30 of pocket spaces S1 in one row of the mattress 20B according to the present embodiment, as viewed in the Y direction. FIG. 14 is a side view of three pocket spaces S1 of a plurality of pocket spaces in

three rows of the mattress 20B according to the present embodiment, as viewed in the X direction. FIG. 15 is a perspective view of a part (hereinafter also referred to as a "pocket coil layer 2") including a non-woven fabric 224B, a spring coil layer 223B, and a non-woven fabric 222 of the mattress 20B as viewed from the bottom side. FIG. 16 is a drawing illustrating the positions of cutting lines 29 for rows of pocket spaces S1 in the X direction, and is a top view of lower portions of coil springs 223a taken along the XY plane passing through the centers in the axial direction of the coil springs 223a. FIG. 16 also illustrates dotted lines 290 indicating where the cutting lines 29 are to be provided.

[0059] The mattress 20B according to the present embodiment differs from the mattress 20A illustrated in FIG. 2A, in that the spring coil layer 223 is replaced with the spring coil layer 223B, and the non-woven fabric 224 is replaced with the non-woven fabric 224B (an example of a second fabric). Further, in the above-described embodiment the non-woven fabric 222 is peeled from the spring coil layer 223B during the non-woven fabric peeling work. In the present embodiment, the non-woven fabric 224B is peeled from the spring coil layer 223B during non-woven fabric peeling work.

[0060] The spring coil layer 223B of the present embodiment differs from the spring coil layer 223 of the above-described embodiment, in the number of pocket spaces S1 (and the number of rows of pocket spaces S1). Note that the present embodiment is suitable for a case where the number of rows of coil

springs 223a (the number of rows arranged in the X direction) is large. As an example, the spring coil layer 223B according to the present embodiment has 24 rows of pocket spaces S1, and each of the 24 rows includes 20 pocket spaces S1 arranged in the X direction.

[0061] Further, unlike the spring coil layer 223 according to the above-described embodiment, in the spring coil layer 223B according to the present embodiment, perforations 252 are formed at positions below the uppermost winding 2231 of a coil spring 223a, above the lowermost winding 2232 of the coil spring 223a, and offset downward relative to the center of the coil spring 223a in the axial direction. In other words, the spring coil layer 223B according to the present embodiment has a configuration in which the configuration of the non-woven fabric 250 of the spring coil layer 223 according to the above-described embodiment is inverted in the vertical direction.

[0062] The non-woven fabric 224B of the present embodiment differs from the non-woven fabric 224 of the above-described first embodiment, in that the non-woven fabric 224B has cutting lines 29 along the X direction in which the perforations 252 extend.

[0063] The cutting lines 29 are formed so as to be continuous in the X direction. The cutting lines 29 may be perforations that do not separate the non-woven fabric 224B in the Y direction. The cutting lines 29 are preferably continuous cutting portions that separate the non-woven fabric 224B in the Y direction. In the present embodiment, the cutting lines 29 are, for example, continuous cutting

portions.

[0064] The cutting lines 29 have a function to improve the workability of the non-woven fabric peeling work as described above. Specifically, when
5 the non-woven fabric 224B has the cutting lines 29, the non-woven fabric 224B does not need to be peeled entirely at one time. That is, when the non-woven fabric 224B is peeled, each of areas (sections) separated by the cutting lines 29 can be peeled.
10 Accordingly, an excessive force is not required to peel the non-woven fabric 224B, thereby improving the workability of the non-woven fabric peeling work. Further details of this function will be described later. Note that cutting lines such as
15 the cutting line 29 do not need to be formed in the non-woven fabric 222.

[0065] From the viewpoint of effectively improving the workability of the non-woven fabric peeling work, each of the cutting lines 29
20 preferably extends from one end portion to the opposite end portion of the non-woven fabric 224B in the X direction as illustrated in FIG. 15. That is, the cutting lines 29 are formed such that the non-woven fabric 224B is divided into a plurality of
25 independent sections in the Y direction. However, in a modified example, each of the cutting lines 29 may be formed so as to terminate short of one of the end portions of the non-woven fabric 224B in the X direction. That is, each of the cutting lines 29
30 may terminate at a position spaced apart from one of the end portions of the non-woven fabric 224B in the X direction by a predetermined distance. In this case, each of the cutting lines 29 may be formed so

as to terminate at a position closer to one of the end portions of the non-woven fabric 224B in the X direction than a pocket space S1 is, which is closest to the one of the end portions in the X direction. The predetermined distance may be relatively small, and may be, for example, 20 mm or less.

[0066] The number of cutting lines 29 may be one. However, if the number of rows of pocket space S1 in the X direction is relatively large as in the present embodiment, a plurality of cutting lines 29 are preferably provided such that the cutting lines 29 are spaced apart from one another in the Y direction. That is, a plurality of cutting lines 29 may be spaced apart from one another in the Y direction while being arranged parallel to one another in the X direction. In this case, the distance between two cutting lines 29 adjacent to each other in the Y direction is greater than the length in the Y direction of one row of pocket spaces S1 arranged in the X direction, that is, greater than the outer diameter (the diameter of the largest part) of the coil spring 223a, and more preferably greater than the length in the Y direction of two rows of pocket spaces S1 in the X direction. In addition, each of the cutting lines 29 is formed between two given rows adjacent to each other in the Y direction among the plurality of rows (rows of pocket spaces S1 in the X direction) in a top view. In the present embodiment, as illustrated in FIG. 15 and FIG. 16, two given rows are periodically provided in the Y direction. That is, the cutting lines 29 between the edge portions 255

on both sides of the non-woven fabric 224B in the Y direction, including the first cutting line 29 from the edge portion 255, are formed at approximately equal intervals in the Y direction. Specifically, 5 each of the cutting lines 29 is provided for every third row, and is formed between two given rows adjacent to each other for every third row. Note that, if the cutting lines 29 are formed after the non-woven fabric 224B is bonded to non-woven fabrics 10 250 with adhesives 84 as will be described later, the pitch of the cutting lines 29 in the Y direction may not be exactly constant. Therefore, the term "approximately equal intervals" with respect to the distance in the Y direction between the cutting 15 lines 29 is meant to tolerate such errors.

[0067] In the present embodiment, as an example, the non-woven fabric 224B is substantially divided into eight separate portions (sections), that is, eight rows in the X direction. In this case, one 20 row of the non-woven fabric 224B covers three rows of pocket spaces S1 in the X direction.

[0068] A manufacturing method for the mattress 20A according to the present embodiment may be basically the same as that of the mattress 20 25 according to the above-described first embodiment. In this case, the cutting lines 29 may be formed in the non-woven fabric 224B after a non-woven fabric (non-woven fabric without cutting lines 29), which is to serve as the non-woven fabric 224B, is fixed 30 to the spring coil layer 223B with the adhesives 84. In this case, the productivity of the non-woven fabric 224B can be increased as compared to when the non-woven fabric 224B is divided into sections by

the cutting lines 29 beforehand and the divided sections of the non-woven fabric 224B are individually fixed to the spring coil layer 223B.

[0069] Next, a disposal method for the mattress 20B, as well as the function of the cutting lines 29 (function to improve the workability of the non-woven fabric peeling work), will be described with reference to FIG. 17 and FIG. 18.

[0070] FIG. 17 and FIG. 18 are drawings illustrating the disposal method for the mattress 20B. FIG. 17 illustrates an initial state S1700 of the disposal method and an execution state S1702 of the non-woven fabric peeling work for the first section of the non-woven fabric 224B. In FIG. 17, the initial state S1700 and the execution state S1702 are illustrated in a perspective view of the pocket coil layer 2 (the part including the non-woven fabric 224B, the spring coil layer 223B, and the non-woven fabric 222) of the mattress 20B as viewed from the bottom side. FIG. 18 illustrates an execution state S1704 of the non-woven fabric peeling work for the third section of the non-woven fabric 224B and a state S1706 in which the non-woven fabric 224B has been peeled off, as viewed from the bottom side similar to FIG. 17.

[0071] The disposal method for the mattress 20B according to the present embodiment is performed in substantially the same manner as the mattress 20 according to the above-described embodiment. That is, the disposal method for the mattress 20B includes work of peeling the non-woven fabric 224B from the spring coil layer 223B such that perforations 252 of non-woven fabrics 250 are broken

so as to open the upper ends of pocket spaces S1
(that is, the non-woven fabric peeling work), and
work of removing coil springs 223a and 223b through
the openings at the upper ends of the pocket spaces
5 S1. Note that the above-described work is performed
manually, but part or all of the work may be
performed by a robot.

[0072] According to the present embodiment, as
illustrated in FIG. 17 and FIG. 18, the non-woven
10 fabric 224B has the cutting lines 29 in the X
direction. Therefore, the workability of the non-
woven fabric peeling work can be effectively
improved. Specifically, a worker first removes
parts (such as the surface fabric 234A) other than
15 the pocket coil layer 2 from the mattress 20B, which
is to be disposed of, such that only the pocket coil
layer 2 remains. Then, the worker forms the initial
state S1700 by flipping the pocket coil layer 2
upside down such that the non-woven fabric 224B of
20 the pocket coil layer 2 faces up. Next, from the
initial state S1700, the worker uses the outermost
cutting line 29 to pull the outermost row of the
non-woven fabric 224B upward so as to peel it off
(see an arrow R170). The worker repeats such work
25 for each row of the non-woven fabric 224B (see the
execution state S1704 in FIG. 18) so as to form the
state S1706 in which all the rows of the non-woven
fabric 224B have been peeled off (that is, the
entire non-woven fabric 224B has been peeled off).
30 Then, the worker ends the non-woven fabric peeling
work. When the non-woven fabric peeling work ends,
the worker performs the work of removing the coil
springs 223a and 223b from the pocket spaces S1

whose upper ends relative to the perforations 252 (as viewed from the worker) are opened.

[0073] If the bonding strength of the adhesives 84 between the non-woven fabrics 250 and the non-woven fabric 224B is insufficient, it would be difficult to effectively break the perforations 252 during the non-woven fabric peeling work. For example, if portions bonded with the adhesives 84 are broken before the perforations 252 are broken during the non-woven fabric peeling work, the perforations 252 would be unable to be broken. Therefore, the bonding strength of the adhesives 84 between the non-woven fabrics 250 and the non-woven fabric 224B needs to be relatively high so that the perforations 252 can be broken first. However, if the bonding strength of the adhesives 84 between the non-woven fabrics 250 and the non-woven fabric 224B is appropriately secured, an excessive force may be required to peel off the entire non-woven fabric 224B at one time. In addition, if the entire non-woven fabric 224B is relatively large and the number of portions to which adhesives 84 are applied increases, an excessive force may be required to peel off the entire non-woven fabric 224B at one time.

[0074] Conversely, according to the present embodiment, the non-woven fabric 224B can be divided into rows by the cutting lines 29 and peeled off row by row, instead of the entire non-woven fabric 224B being peeled off at one time. Accordingly, an excessive force is not required to peel off the non-woven fabric 224B, thus improving the workability of the non-woven fabric peeling work.

[0075] If the cutting lines 29 according to the present embodiment are applied to the mattress 20 illustrated in FIG. 2, the spring coil layer 223 may be replaced with the spring coil layer 223B, and
5 cutting lines, which are similar to the cutting lines 29 of the non-woven fabric 224B, may be formed in the non-woven fabric 222. Alternatively, cutting lines, which are similar to the cutting lines 29, may be formed in the non-woven fabric 224 instead of
10 or in addition to the non-woven fabric 222.

[0076] As described above, the spring coil layer 223B according to the present embodiment has a configuration in which the configuration of the non-woven fabric 250 of the spring coil layer 223
15 according to the above-described embodiment is inverted in the vertical direction. Therefore, as illustrated in FIG. 14, adhesives 80 may be applied only above the perforations 252. If the adhesives 80 are also applied below the perforations 252, the
20 workability of the non-woven fabric peeling work would decrease. That is, if the adhesives 80 are also applied below the perforations 252, the force during the non-woven fabric peeling work would also be exerted between non-woven fabrics 250 adjacent
25 to each other in the Y direction (non-woven fabrics 250 adjacent to each other via a cutting line 29) via the adhesives 80, and thus, the force required to break the perforations 252 would be increased. Conversely, as illustrated in FIG. 14, if the
30 adhesive 80 is applied only above the perforations 252, the force during the non-woven fabric peeling work is not significantly exerted, via the adhesives 80, between non-woven fabrics 250 adjacent to each

other via a cutting line 29. Accordingly, an excessive force is not required to peel off the non-woven fabric 224B, thus improving the workability of the non-woven fabric peeling work.

5 **[0077]** Although the embodiments have been described in detail above, the present invention is not limited to the particulars of the above-described embodiments. Various modifications and variations may be applied to the above-described
10 embodiments without departing from the scope of the present invention. Furthermore, all or a plurality of the components of the above-described embodiments may be combined.

[0078] For example, in the above-described first
15 embodiment, the perforations 252 are formed at positions offset upward relative to the centers of the coil springs 223a and 223b in the vertical direction. However, instead of and in addition to the perforations 252, perforations 252 may be formed
20 at positions offset downward relative to the centers of the coil springs 223a and 223b in the vertical direction. In this case, the perforations 252 can be readily broken by pulling from the opposite side (that is, pulling the lower-side non-woven fabric
25 224 in a direction in which the non-woven fabric 224 is peeled from the spring coil layer 223). For example, if the top and the bottom of the mattress
20 can be flipped, and perforations 252 are formed at positions offset upward relative to the centers
30 of the coil springs 223a and 223b in the vertical direction and perforations 252 are also formed at positions offset downward relative to the centers of the coil springs 223a and 223b in the vertical

direction, the user can pull the non-woven fabric 222 or the non-woven fabric 224 so as to break the upper-side perforations 252 or the lower-side perforations 252 without being conscious of the
5 vertical direction of the mattress 20.

Alternatively, perforations 252 may be formed at positions in the vicinity of the center of each of the coil springs 223a and 223b in the vertical direction (at positions that are not offset in the
10 vertical direction).

[0079] Further, in the second embodiment described with reference to FIG. 12 and the subsequent drawings, the cutting lines 29 are formed only along the X direction in which the perforations
15 252 extend; however, the present invention is not limited thereto. Cutting lines (not illustrated) may be formed along the Y direction so as to intersect the cutting lines 29 formed along the X direction. In this case, the cutting lines formed
20 along the Y direction decrease the length of each of portions (sections) of the non-woven fabric 224B divided by the cutting lines 29 formed along the X direction. Therefore, while the number of the separated portions increases, the workability of the
25 non-woven fabric peeling work can be improved.

[0080] With respect to the above-described first embodiment, the following clauses will be further disclosed.

[0081] [Clause 1] A mattress with a plurality of
30 pocket coils disposed along a first direction and a second direction is provided. The first direction and the second direction are orthogonal to each other in a plane perpendicular to the vertical

direction. The mattress includes coil springs forming the respective pocket coils; and one first fabric defining a plurality of pocket spaces. The pocket spaces are arranged in the first direction
5 and the respective coil springs are housed in the pocket spaces. The one first fabric has perforations on both sides, with respect to the center, in the second direction of the each of the pocket spaces. The perforations are continuous in
10 the first direction. The two perforations are configured to be broken in response to a portion between the two perforations in the second direction of the first fabric being pulled upward or downward (in a direction away from the pocket spaces).

15 **[0082]** [Clause 2] The mattress according to clause 1, further including a second fabric fixed to the portion of the first fabric.

[0083] [Clause 3] The mattress according to clause 2, wherein the first fabric includes a
20 plurality of first fabrics provided for respective rows of the pocket spaces arranged in the first direction such that the plurality of rows are adjacent to one another in the second direction, and the second fabric is fixed to the plurality of first
25 fabrics provided for the respective rows, extends in a plane defined by the first direction and the second direction, and extends above or below the plurality of rows of the pocket spaces.

[0084] [Clause 4] The mattress according to
30 clause 3, wherein the first fabric for a corresponding row has a second welded portion where end portions of the first fabric are joined together, the second welded portion being located on

one side in the second direction of each of the pocket spaces arranged in the corresponding row, and the two perforations are positioned above or below the second welded portion.

5 **[0085]** [Clause 5] The mattress according to any one of clauses 1 to 4, wherein the one first fabric has a first welded portion that separates the pocket spaces arranged in the first direction from one another, and the first welded portion is formed
10 along the vertical direction so as to terminate short of the two perforations.

[0086] [Clause 6] The mattress according to any one of clauses 1 to 5, wherein the two perforations are formed at positions offset upward relative to
15 the uppermost winding of the coil springs, downward relative to the lowermost winding of the coil spring, and upward or downward relative to the center in the axial direction of each of the coil springs.

20 **[0087]** In addition, with respect to the above-described second embodiment, the following clauses will be further disclosed.

[0088] [Clause 11] A mattress with a plurality of pocket coils disposed along a first direction and a
25 second direction is provided. The first direction and the second direction are orthogonal to each other in a plane perpendicular to the vertical direction. The mattress includes coil springs forming the respective pocket coils; a first fabric
30 defining a plurality of pocket spaces in which the respective coil springs are housed; and a second fabric extending in a planar shape so as to cover the plurality of pocket spaces from a first side in

the vertical direction, and is fixed to the first fabric. The first fabric includes a plurality of first fabrics provided for respective rows of the pocket spaces arranged in the first direction. Each
5 of the first fabrics has perforations on both sides in the second direction of each of the pocket spaces. The perforations are continuous in the first direction. The second fabric has a cutting line along the first direction.

10 **[0089]** [Clause 12] The mattress according to clause 11, wherein the cutting line extends from one end portion to an opposite end portion of the second fabric in the first direction

[0090] [Clause 13] The mattress according to
15 clause 11 or 12, wherein the cutting line includes a plurality of cutting lines spaced apart from one another in the second direction, and each of the cutting lines is formed between two rows adjacent to each other in the second direction among a plurality
20 of rows in a top view.

[0091] [Clause 14] The mattress according to clause 13, wherein the plurality of cutting lines are formed at approximately equal intervals in the second direction.

25 **[0092]** [Clause 15] The mattress according to clause 13 or 14, wherein two or more rows are provided between two cutting lines adjacent to each other in the second direction or between an edge portion, in the second direction, of the second
30 fabric and a cutting line that is adjacent to the edge portion.

[0093] [Clause 16] The mattress according to any one of clauses 11 to 15, wherein the one first

fabric has a first welded portion that separates the pocket spaces arranged in the first direction from one another, and the first welded portion is formed along the vertical direction and is provided only on
5 a second side relative to the two perforations, the second side being opposite the first side in the vertical direction.

[0094] [Clause 17] The mattress according to any one of clauses 11 to 16, wherein side portions in
10 the second direction of two first fabrics adjacent to each other in the second direction, among the plurality of first fabrics provided for the respective rows, are bonded to each other, and the two perforations are positioned on the first side
15 relative to the bonded side portions.

DESCRIPTION OF THE REFERENCE NUMERALS

[0095]

7 bed frame
20 20, 20A, 20B mattress
21 upper quilting part
22 padding part
23 lower quilting part
25 non-woven fabric sheet
25 80 adhesive
82 adhesive
84 adhesive
211 surface fabric
212 artificial cotton
30 213 soft polyurethane
214 non-woven fabric
220 non-woven fabric
221 soft polyurethane

222 non-woven fabric
223, 223B spring coil layer
223a coil spring
223b coil spring
5 224, 224B non-woven fabric
225 soft polyurethane
226 non-woven fabric
231 non-woven fabric
232 soft polyurethane
10 233 artificial cotton
234 surface fabric
250 non-woven fabric
252 perforation
256 welded portion
15 258 welded portion
400 perforation forming blade
2231 winding
2232 winding

CLAIMS

5

[Claim 1] A mattress with pocket coils, the mattress comprising:

coil springs forming the pocket coils;
a first fabric defining pocket spaces in
10 which the respective coil springs are housed; and
a second fabric extending in a planar
shape so as to cover an entirety of the pocket
spaces;

wherein the first fabric is provided for
15 each of rows of the pocket spaces;

wherein the first fabric has perforations
on both sides with respect to a center of each of
the pocket spaces, the perforations being continuous
in a first direction;

20 wherein the second fabric is fixed to a
portion between the two perforations of the first
fabric, the portion being between the two
perforations in a second direction intersecting the
first direction, and

25 wherein the two perforations are
configured to be broken in response to the portion
of the first fabric being pulled in a direction away
from the pocket spaces.

30

[Claim 2] The mattress according to claim 1, wherein

the second fabric has a cutting line along the first direction.

5

[Claim 3] The mattress according to claim 2, wherein the cutting line extends from one end portion to an opposite end portion of the second fabric in the first direction.

15 [Claim 4] The mattress according to claim 2 or 3, wherein the cutting line includes a plurality of cutting lines spaced apart from one another in the second direction intersecting the first direction, and

20 each of the cutting lines is provided between two rows adjacent to each other in the second direction among a plurality of rows in a top view.

25

[Claim 5] The mattress according to any one of claims 1 to 4, wherein the two perforations are provided at positions offset toward the second fabric relative to a center in an axial direction of each of the coil springs, the axial direction corresponding to a vertical direction.

5 [Claim 6] A manufacturing method for the mattress
according to any one of claims 2 to 4, the
manufacturing method comprising:

 a process for fixing the second fabric to
the first fabric; and

10 a process for forming the cutting line in
the second fabric fixed to the first fabric.

15

[Claim 7] A manufacturing method for the mattress
according to any one of claims 2 to 4, the
manufacturing method comprising:

 a preparation process for preparing the
20 first fabric having the two perforations;

 a process for positioning a center of each
of the coil springs at a center between the two
perforations of the first fabric in the second
direction, a number of the coil springs
25 corresponding to a number of the pocket spaces in
each of the rows; and

 a process for wrapping the coil springs
with the first fabric by causing end portions in the
second direction of the first fabric to overlap each
30 other.

[Claim 8] The manufacturing method according to claim 7, wherein the preparation process includes a process for cutting one fabric into a plurality of first fabrics while simultaneously forming the two perforations in each of the first fabrics.

10

[Claim 9] A disposal method for the mattress according to any one of claims 2 to 4, the disposal method comprising:

15 a first process for peeling the second fabric from the first fabric so as to break the two perforations of the first fabric; and

20 a second process for removing, after the first process, the coil springs from the pocket spaces that are opened in response to the two perforations of the first fabric being broken.