June 26, 1951 J. F. BARNES 2,558,166

PAD STRUCTURE

Filed July 31, 1948

Fig. 1

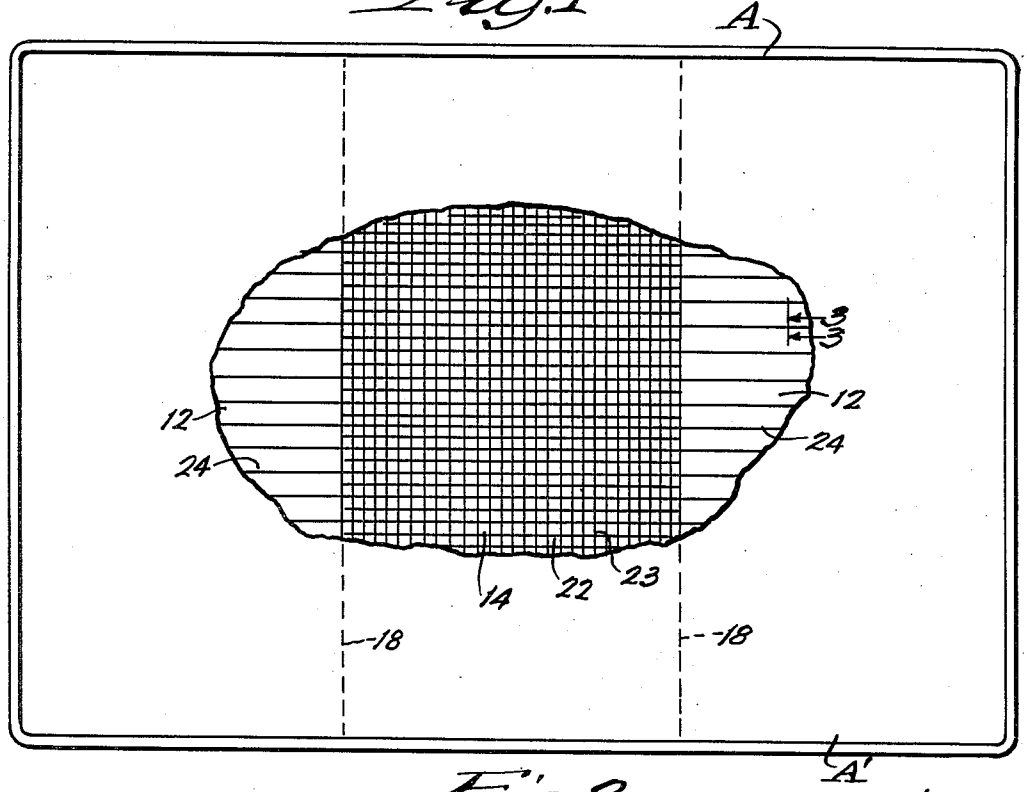


Fig. 2

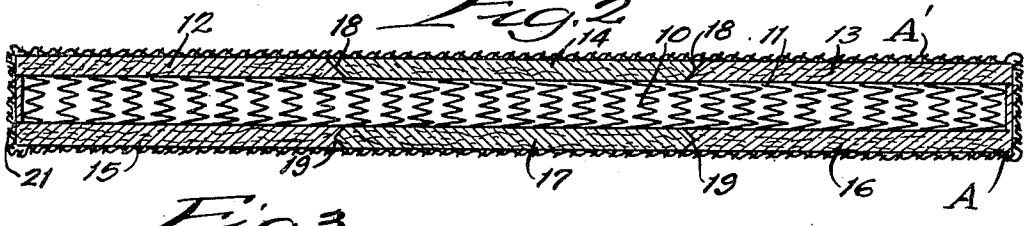
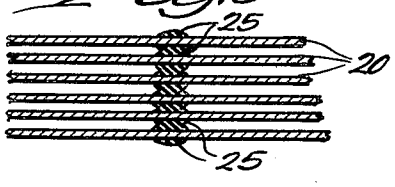


Fig. 3



Inventor:
James F. Barnes,
By Dawson, Orrs, Britt & Spangler,
Attorneys.

Patented June 26, 1951

2,558,166

UNITED STATES PATENT OFFICE

2,558,166

PAD STRUCTURE

James F. Barnes, Chicago, Ill.

Application July 31, 1948, Serial No. 41,801

7 Claims. (Cl. 5—351)

1

This invention relates to a mattress and to pads employed in a mattress structure.

In the manufacture of mattresses, it is common practice to add extra layers of material to the central portion of each pad and, in the subsequent tufting operation, the tufting cords are drawn tighter in the central portion of the mattress so as to produce a relatively smooth mattress. However, by drawing the tufting cords tighter in the central portion of the mattress in order to flatten it, the springs are compressed more in such central portion and in this portion of the mattress, the springs have less opportunity to expand and contract. Further, the tufts in the central portion of the mattress by reason of the greater pressure upon them are drawn more deeply into the mattress structure and the portions around the tuft tend to bulge more than at the other portions of the mattress. The mattress is unsatisfactory in these and other respects.

An object of the present invention is to provide a mattress equipped with pads which are centrally reinforced while at the same time being of substantially the same depth throughout. Another object is to provide a tuftless mattress in which the central portion of the mattress padding or pads about the springs is of substantially the same thickness or depth as the remaining portions of the padding or pads while at the same time being reinforced. A still further object is to provide a reinforced mattress pad structure in which insert portions are provided, the insert portions being reinforced with resilient bonding material and being connected to the remaining pad portions by angular lines. A still further object is to provide in a mattress structure padding or pads having end portions and a central insert portion reinforced with resilient threads or webs, the central pad portion being provided with more closely spaced resilient connecting members or with a greater quantity of resilient bonding material to provide reinforcement for the central pad portion. Other specific objections and advantages will appear as the specification proceeds.

The invention, is illustrated, in a single embodiment, by the accompanying drawing, in which—

Fig. 1 is a broken top plan view of a mattress structure embodying my invention; Fig. 2, a transverse sectional view; and Fig. 3, an enlarged detailed sectional view, the section being taken as indicated at line 3 of Fig. 1.

In the illustration given A designates a mattress equipped with a cover A'.

2

Within the mattress is the usual spring core 10 formed in the usual manner. The springs, if desired, may be enclosed by a fabric casing 11.

On either side of the spring body is a pad which may be formed in a plurality of parts. On the upper side of the mattress, as shown in Fig. 2, I provide end pad portions 12 and 13 and a central insert pad portion 14. Similarly, on the underside, I provide pad end portions 15 and 16 and a central insert portion 17.

The central pad portions 14 and 17 may be connected to the end pad portions by any suitable means. I prefer to have the connections along inclined or angular lines. For example, the sides of the insert 14 meet the inner edges of the pads 15 and 16 along the oblique lines indicated by the numeral 18. The central pad portion 17 below the springs meets the pad portions 15 and 16 along the pointed lines 19.

I have found that an excellent mattress can be provided having the necessary strength in the central portion thereof to bear the heaviest portion of the body of the sleeper while at the same time avoiding the necessity of using tufts, by providing a central insert portion such as is illustrated by the portions 14 and 17 while at the same time reinforcing the central portions with latex threads, webs or other material which unite superposed web layers, as illustrated in Fig. 3. For example, the central portion 14 or 17 is preferably formed of a large number of cotton web or felt layers 20. These thin layers are united by threads of latex or other resilient material. For example, in the forming of the central insert pad 14 or 17, the individual layers 20 are preferably provided with drops or lines of a resilient bonding material such as latex and the layers are then pressed together with the drops or lines merging with each other, as illustrated best in Fig. 3.

By having the spots or lines of bonding material in vertical alignment, as shown in Fig. 3, the thread or web is substantially integral or continuous and integrates the web portions of the pad while at the same time the web or thread is highly elastic and resilient and reinforces the central pad portion.

The mattress may be provided with the usual border strips 21 and will be enclosed along with the upper and lower pads by the mattress cover A'.

It will be understood that tufts may be employed, if desired, with the new mattress, but such tufts are not necessary for the purpose of compressing the central portion of the mattress as in the present practice of mattress manufac-

ture. A mattress of substantially uniform depth throughout is provided without compressing the springs more at one place than at another while at the same time the central portion of the mattress is reinforced to carry an additional weight.

The horizontal lines of bonding material are indicated in the central pad 14 by the numeral 22. Additional lines of bonding material 23 may be provided, as shown more clearly in Fig. 1, the lines 23 running at right angles to the lines 22.

In the new mattress, I prefer to reinforce the end pads 13 and 12 with lines of resilient bonding material and such lines are indicated by the numeral 24, as shown more clearly in Fig. 1. Since these pad portions, however, do not support as much weight, the reinforcing lines may be spaced farther apart. Pads 15 and 16 are also preferably reinforced in the same manner as pads 12 and 13.

The reinforcing with resilient bonding material may be accomplished in any suitable manner. The reinforcing may be by employing spots or drops of latex as indicated by the numeral 25 in Fig. 3. Aligned spots 25 on the various thin layers of cotton or felt web material result in forming an integral thread or post extending through the entire pad. It is found that when a drop of liquid latex strikes the thin web 20 it penetrates through the web and forms a slight latex mound on the opposite side. When the aligned latex portions are brought together, as shown in Fig. 3, then the drops merge and a pad reinforced by thin latex threads extending therethrough results.

In forming the lines of latex through the mattress pad, the preferred practice is to apply the latex in spaced streams while the pad layers are being separately advanced. Later when the pad layers are pressed together with the lines of latex together, the latex unites to form thin flexing webs extending the full depth of the pads.

It will be understood, however, that the webs or layers forming the pad may be united by spraying of latex on the separate webs or layers or by forming latex spots or lines, etc. on the separate layers and later bringing them together. The spaced latex threads or webs, however, provide a preferred structure in that they have unreinforced areas between the threads and webs through which air may circulate in the expanding and contracting of the pads.

Any suitable material may be used for bonding the web plies in forming the end pads, end pad portions or central pad portions. Latex has been found to be very satisfactory. Also, natural rubber or rubber compositions and synthetic rubber and synthetic rubber compositions are quite satisfactory. Other materials, such as polyvinyl or plastic bodies, may be used and more particularly plastic material which is flexible in character. I prefer to employ a resilient bonding material because of its flexibility and effectiveness in keeping the pad in relatively expanded condition.

While in the illustration given, the padding on the spring structure is shown in separate portions, it will be understood that the pad on either side of the mattress may be unitary and with no separate inserts therein. Such a single pad is formed with few reinforcing bonds in the end portions but with relatively heavier reinforcing lines or areas in the central portion, thus giving the same results as already described.

While in the foregoing specification, I have set forth a specific structure in considerable detail for the purpose of illustrating an embodiment of the invention, it will be understood that such details or structure may be varied widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. A pad structure comprising fibrous layers united by spaced posts of resilient bonding material, said posts extending from the top to the bottom of the pad and supporting the layers thereof.

2. A pad structure comprising a plurality of fibrous layers in superposed relation, spots of resilient material carried by said layers, said spots being in vertically-aligned relation, said resilient spots extending through the layers and being united to form a vertical resilient post supporting the layers.

3. In a pad structure, a plurality of fibrous layers lying one on the other, spaced lines of resilient material on each of said layers and extending therethrough, said resilient lines being in vertically-aligned relation and being united with each other to form vertical sheets of resilient material lying in spaced-apart relation and supporting said layers.

4. In a pad structure, a plurality of layers of cotton fibers lying upon each other, vertically-aligned areas of adhesive upon said layers and extending therethrough, said areas being merged together in a vertical plane to form spaced-apart resilient posts supporting said layers, the layers of cotton fibers between said posts being suspended freely between the posts.

5. In a pad structure, a plurality of layers of cotton fibers lying upon each other, vertically-extending resilient supports passing through and united to said fibrous layers to support the same, said supports being spaced apart through said pad structure to form a honey-comb frame structure resiliently supporting the layers.

6. A pad structure comprising a plurality of fibrous layers in superposed relation, and spaced areas of flexible bonding material extending through each of the fibrous layers, at least some of the areas of superposed layers being united between the layers.

7. A pad structure comprising a pair of thin fibrous layers in superposed relation, and spaced areas of flexible bonding material extending through each layer, at least some of said areas being in general vertical alignment and forming a union between said layers.

JAMES F. BARNES.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,291,709	Angier et al.	Jan. 21, 1919
1,755,715	Suekott	Apr. 22, 1930

FOREIGN PATENTS

Number	Country	Date
518,437	Germany	Feb. 16, 1931
726,811	France	Mar. 14, 1932