

Sept. 30, 1958

M. KOENIGSBERG
MATTRESS STRUCTURE

2,853,721

Filed Sept. 30, 1955

3 Sheets-Sheet 1

Fig. 1.

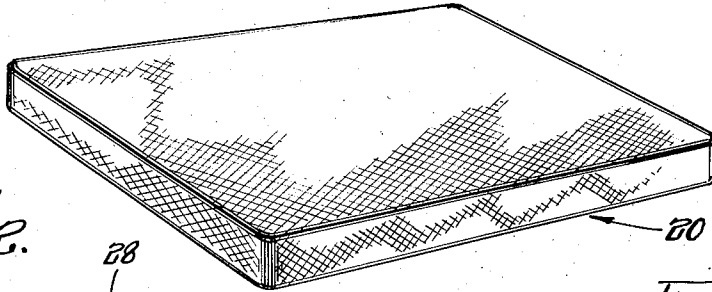


Fig. 2.

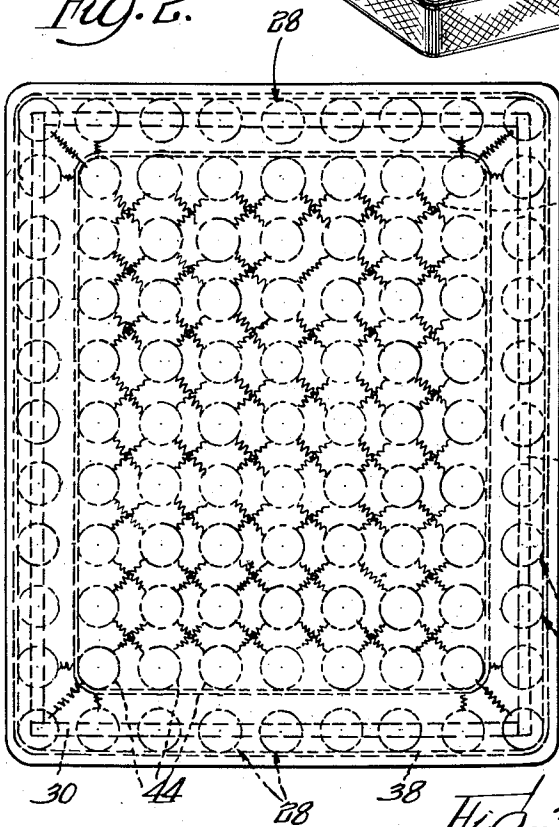


Fig. 4.

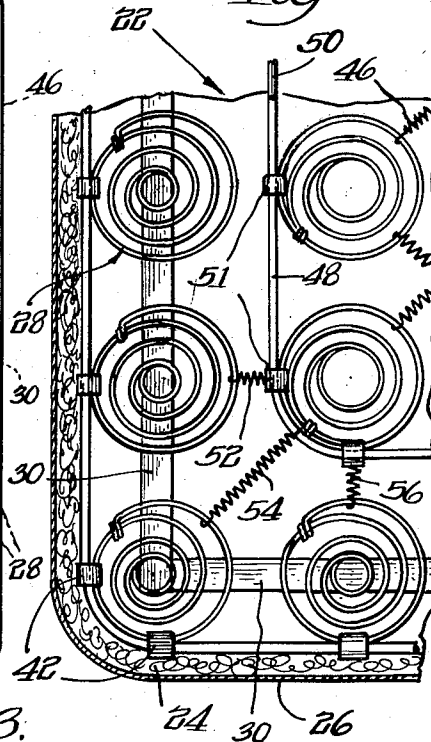
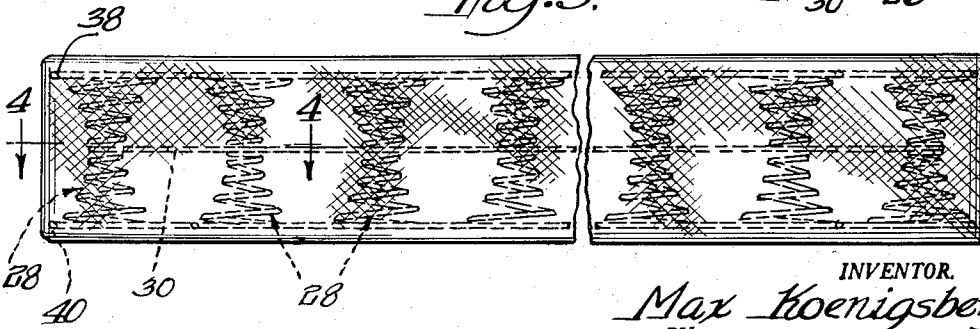


Fig. 3.



INVENTOR.

Max Koenigsberg
BY: *Olson & Treffer*
attys.

Sept. 30, 1958

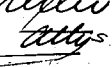
M. KOENIGSBERG

2,853,721

MATTRESS STRUCTURE

Filed Sept. 30, 1955

3 Sheets-Sheet 2



Sept. 30, 1958

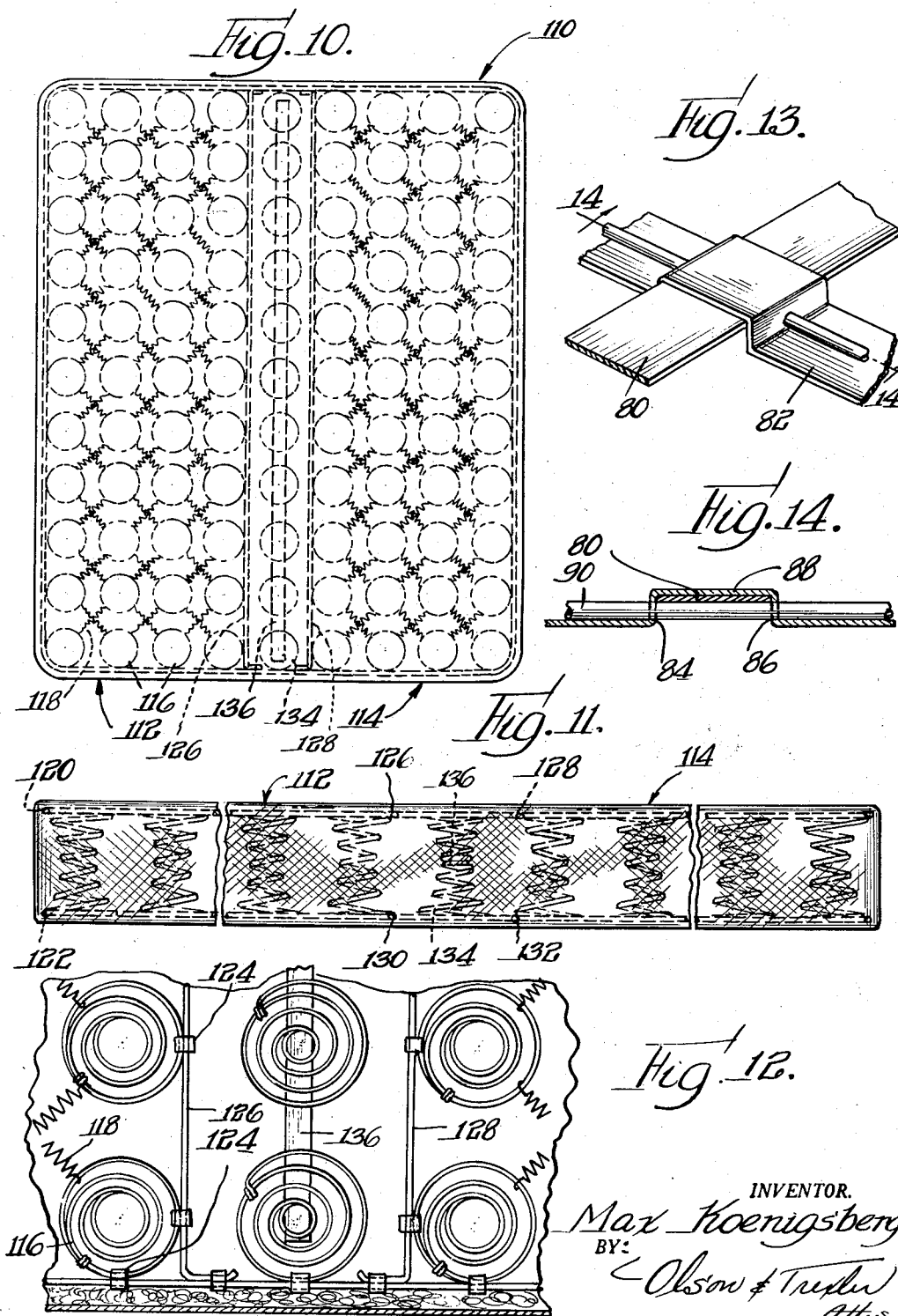
M. KOENIGSBERG

2,853,721

MATTRESS STRUCTURE

Filed Sept. 30, 1955

3 Sheets-Sheet 3



1

2,853,721

MATTRESS STRUCTURE

Max Koenigsberg, Highland Park, Ill., assignor to The Englander Company, Inc., Chicago, Ill., a corporation of Delaware

Application September 30, 1955, Serial No. 537,729

8 Claims. (Cl. 5—351)

The present invention relates to a novel cushion structure and more particularly to a novel spring structure for mattresses or box spring units or the like.

In many instances it is desirable to provide spring mattresses or box spring units or the like which are constructed so that certain portions of the mattress may yield relatively independently of other portions of the mattress. For example, it may be desirable to have marginal portions of mattresses used on hospital beds yielded independently of center portions of the mattresses since doctors, nurses, or visitors often sit on the marginal portions of such mattresses, and many mattresses heretofore in general use tend to sag toward the person sitting on the margin thereof in a manner which may cause discomfort to a patient lying on the mattress. Also, in double mattresses it is desirable to construct the mattress so that a person lying on one side thereof will not cause the entire mattress to sag to the discomfort of a person lying on the other side.

Various suggestions have heretofore been made for providing mattress structures or the like having more or less independently operating springs in an attempt to accomplish the results mentioned above, and while such proposed structures have met with varying degrees of success they are usually relatively expensive.

An important object of the present invention is to provide a novel mattress structure or the like which is constructed so that springs in certain portions thereof function substantially independently of springs and other portions thereof and which at the same time may be economically manufactured.

A more specific object of the present invention is to provide a novel reversible coil spring mattress or the like having the characteristics set forth in the preceding paragraph.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein:

Fig. 1 is a perspective view of a mattress structure embodying the features of the present invention;

Fig. 2 is a plan view of the novel mattress structure;

Fig. 3 is an enlarged end view of the novel mattress structure;

Fig. 4 is a fragmentary sectional view taken along the line 4—4 in Fig. 3;

Fig. 5 is a plan view of a double mattress embodying the modified form of the present invention;

Fig. 6 is an end view of the mattress structure shown in Fig. 5;

Fig. 7 is an enlarged fragmentary sectional view taken along the line 7—7 in Fig. 6;

Fig. 8 is a fragmentary perspective view showing the manner of supporting certain of the coil springs in the mattress structure;

Fig. 9 is a fragmentary sectional view taken along the line 9—9 in Fig. 8;

Fig. 10 is a plan view showing another modified form of the present invention;

2

Fig. 11 is an end view of the mattress structure shown in Fig. 10;

Fig. 12 is an enlarged fragmentary sectional view taken along line 12—12 in Fig. 11;

Fig. 13 is a fragmentary perspective view showing a portion of the structure for supporting certain of the springs; and

Fig. 14 is a fragmentary sectional view taken along line 14—14 in Fig. 13.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a mattress structure 20 incorporating the novel features of the present invention shown in Figs. 1—4. The mattress 20 comprises spring means 22 described in detail below which is covered by suitable padding 24 and ticking 26 in a known manner.

In accordance with the present invention the spring means 22 is constructed so that the peripheral margin of the mattress will yield and function substantially independently of central portions of the mattress. More specifically, the spring means 22 is provided with a peripheral border of coil springs 28 which may be formed so as to have an hour glass shape as shown in Fig. 3. The coil springs 28 are retained in spaced relationship and in longitudinally and transversely extending rows as shown in Fig. 2 by means of metal strips 30 which are interconnected with each of the springs as shown best in Figs. 8 and 9. More particularly each of the coil springs 28 comprises a pair of substantially abutting centrally located coils 32 and 34, and the metal strip is inserted between and clamped by the coils 32 and 34 of each coil spring. In addition the strips 30 are provided with a series of spaced tabs 36 each of which projects through the coil 32 of one of the springs 28 so as to preclude shifting of the springs longitudinally of the strips. Upper and lower border wires 38 and 40 are connected with opposite end coils of the springs 28 by means of clips 42 or the like.

While springs such as the springs 28 which are interconnected by centrally located strips such as the strips 30 promote independent yielding of the individual springs, the structure provided thereby is relatively expensive. The central portion of the spring means is made of more economical construction and is supported so as to function substantially independently of the border springs. As shown in the drawings the center section of the spring means comprises a plurality of rows of coil springs 44 which may be of any known construction. Opposite end coils of each of the springs 44 are interconnected with the end coils of adjacent springs 44 by means of small springs, wires, clips or any other suitable device which may be rapidly and easily applied so as to reduce manufacturing cost. In the particular embodiment shown for the purpose of illustrating the present invention diagonally arranged small springs 46 are provided for interconnecting the end coils of the springs 44. The section of the mattress comprising the springs 44 is surrounded by upper and lower border wires 48 and 50 which are secured to opposite end coils of the outermost springs 44 by clips 51 or the like. As shown thus in Figs. 2 and 4 the central spring section is interconnected with the peripheral spring section only at the corners of the mattress structure so that the two spring means sections function substantially and independently of each other. Thus, at each corner of the mattress structure, the internal border wires 48 and 50 are interconnected with opposite end coils of the corner springs 28 by small springs 52, 54 and 56 or the like.

In Figs. 5, 6 and 7 there is shown a mattress structure 60 embodying a modified form of the present invention, which mattress structure is a double mattress and is constructed so as to provide two substantially independently

yieldable sleeping sections. The mattress structure 60 is provided with a border spring section which includes a plurality of springs 62 similar to the above described springs 44. In addition opposite sleeping sections of the mattress are separated by a centrally disposed row of the springs 62. The peripherally arranged springs 62 have opposite end coils thereof connected as by clips 64 or the like to upper and lower outer border wires 66 and 68 and also to upper and lower internal border wires 70 and 72. The central row of springs 62 have their opposite end coils clipped or otherwise secured to the internal border wires 70 and 72.

As mentioned above the mattress 60 is provided with a pair of sleeping sections which are generally designated by the numerals 74 and 76, and since these sections are essentially identical only the section 74 will be described in detail. The section 74 includes a plurality of longitudinally extending rows of springs 78 which are identical to the above described springs 28. The coil springs 78 are mounted on sheet material or metal strips 80 which are identical to the above described strips 30. In order to maintain the rows of coil springs 78 in predetermined relationship with each other, a plurality of transversely extending sheet material or metal strips 82 is spaced along and interconnected with the strips 80. The manner in which the strips 82 are connected with the strips 80 is shown best in Figs. 13 and 14. More specifically, each strip 82 is provided with offset portions for receiving each of the strips 80. Each of these offset portions includes laterally extending flange sections 84 and 86 integrally joined by connecting section 88. After a strip 80 has been disposed in an offset portion as shown in Figs. 13 and 14, a locking wire 90 is inserted through apertures in the flange sections 84 and 86 and beneath the strip 80 so that the strips 80 and 82 are securely retained in assembled relationship. As shown in Figs. 5 and 7 the endmost coil springs 78 of the spring section 74 have their opposite end coils interconnected with the border wires 70 and 72 by means of small springs 92, 94, 96, 98, 100, 102, and 104.

In Figs. 10, 11, and 12 there is shown a double mattress structure 110 which embodies a modified form of the present invention. In this embodiment opposite sleeping sections 112 and 114 of the mattress are more economically formed by constructing them from a plurality of rows of coil springs 116 which may be identical to the above described coil springs 44. The coil springs 116 are interconnected at their opposite ends by suitable means such as small diagonally disposed springs 118 or other similar devices. Upper and lower border wires 120 and 122 are secured to the peripherally disposed springs 116 by clips 124 or the like. In addition upper internal border wire sections 126 and 128 and internal lower border wire sections 130 and 132 extend along the innermost longitudinally extending row of springs 116 in each of the sections 112 and 114 and are secured to the springs by additional clips 124. The spring sections 112 and 114 are separated by one or more rows of coil springs 134 which are identical to the above described springs 28 and which are mounted on a strip 136 identical to the above described strip 30. The endmost springs 134 are respectively clipped or otherwise secured to opposite end portions of the border wires 120 and 122.

From the above description it is seen that the present invention has provided novel mattress structures or the like fully capable of satisfying the objects heretofore set forth. More specifically it is seen that the present invention has provided mattress structures of relatively economical construction while at the same time having certain sections which are yieldably substantially independently of other sections. It will be appreciated that the mattresses constructed in accordance with this invention may be reversed so that either side may be used since all the coil springs are full depth springs, and, if desired, the springs in certain of the sections may be

formed so as to be either stiffer or more yieldable than the coil springs in other of the sections. Alternately the springs in all sections may be formed so that the mattress has a uniform softness or feel in all sections thereof.

While the preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. A spring structure comprising a plurality of rows of wire coiled springs of substantially equal height arranged in groups, the springs in one of said groups having a pair of closely adjacent intermediate coils, a sheet material strip gripped between said coils for retaining the springs of said one group, means connecting opposite end coils of adjacent springs in another of said groups, a plurality of intermediate springs of said one group between other springs adjacent opposite ends of said one group being unconnected to the springs of the other of said groups, and means interconnecting only springs in said one group adjacent opposite ends of said one group only with springs of other of said groups adjacent opposite ends of said other of said groups so as to promote independent action of the springs in said one group with respect to the springs of the other of said groups.

2. A spring structure, as defined in claim 1, which includes upper and lower border elements surrounding the other of said groups and secured to opposite end coils of adjacent springs in said other of said groups.

3. A spring structure, as defined in claim 1, wherein the springs of said one group are arranged in longitudinally extending rows at opposite sides of the other of said groups and provide opposite margins of the spring structure.

4. A spring structure, as defined in claim 2, wherein the springs of said one group are arranged in longitudinally and transversely extending rows surrounding said other of said groups and provide a peripheral margin of said spring structure, and said spring structure including additional border elements surrounding and secured to the springs of said one group.

5. A spring structure comprising a plurality of rows of wire coiled springs of substantially equal height, said springs being arranged in a pair of groups and a third group disposed between and separating said pair of groups, means interconnecting opposite end coils of adjacent springs in said pair of groups of said springs, each of said springs in said third group including a pair of intermediate closely adjacent coils, sheet material strip means disposed between and gripped by said adjacent coils of the springs of said third group for supporting said last mentioned springs, a plurality of intermediate springs of said third group between other springs adjacent opposite ends of said third group being unconnected to the springs of said pair of groups, means interconnecting substantially only springs in said third group adjacent opposite ends of said third group substantially only with springs in said pair of groups adjacent opposite ends of said pair of groups so as to promote independent action of the springs in each of said groups with respect to the springs in the other of said groups, and said last named means including external border elements surrounding said groups of springs and secured to outermost coil springs in said groups.

6. A spring structure, as defined in claim 5, which includes internal border elements extending along and secured to the springs in said pair of groups adjacent said third group.

7. A spring structure comprising a plurality of rows of wire coiled springs of substantially equal height arranged in a pair of spaced groups and a third group, each of said springs of said pair of groups having a pair of closely adjacent intermediate coils, each of said pair of groups including a plurality of rows of springs, sheet material strip means disposed between and gripped by the

5

adjacent coils of the springs in each of said last mentioned rows for supporting the springs in said pair of groups, said third group of springs being arranged in rows around and between said pair of groups, means connecting opposite end coils of adjacent springs in said third group, a plurality of intermediate springs of each of said groups between other springs adjacent opposite ends of said groups being unconnected to the springs of the other of said groups, and means connecting end coils of only substantially endmost springs in said pair of groups with adjacent springs in said third group, said means connecting opposite end coils of adjacent springs in said third group including external border elements surrounding said groups of springs and secured to outermost springs of the spring structure.

10

15

6

8. A spring structure, as defined in claim 7, wherein said means connecting opposite end coils of adjacent springs in said third group includes internal border elements extending along and secured to the springs of said third group disposed between said pair of groups.

References Cited in the file of this patent

UNITED STATES PATENTS

2,192,463	Wesley	Mar. 5, 1940
2,681,457	Rymland	June 22, 1954
2,698,444	Piliero	Jan. 4, 1955

FOREIGN PATENTS

144,323	Australia	Nov. 11, 1951
---------	-----------	---------------