Dec. 11, 1956 R. A. ROZELLE 2,773,270

ADJUSTABLE INNERSPRING UNIT

Filed Sept. 13, 1952 6 Sheets-Sheet 1

Fig. 1.

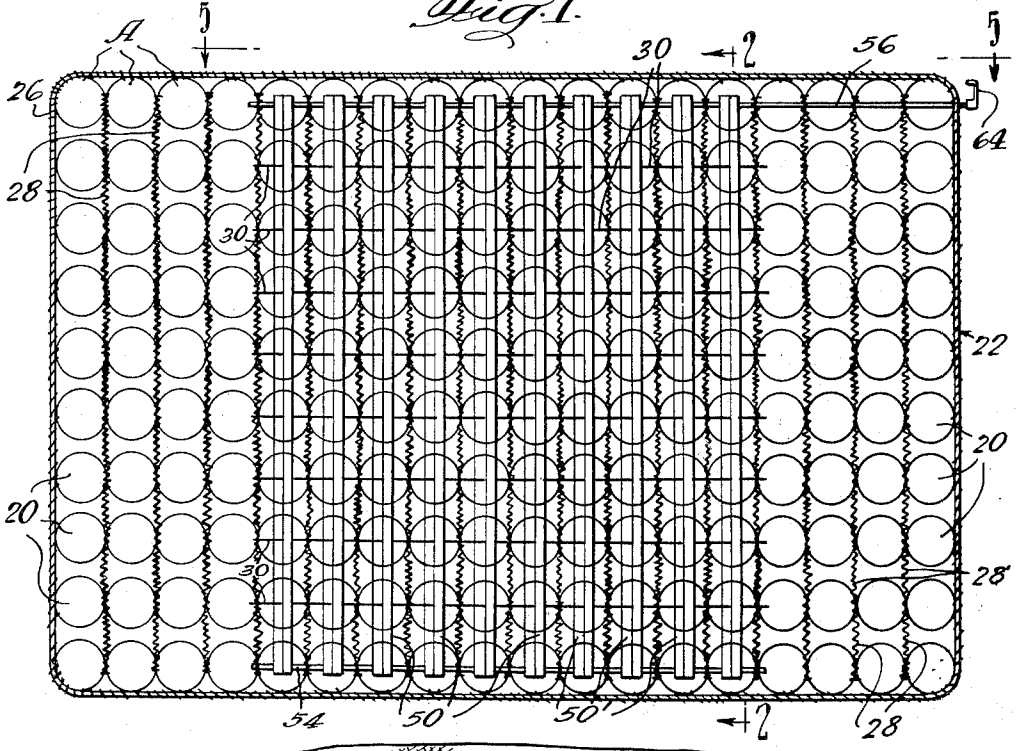
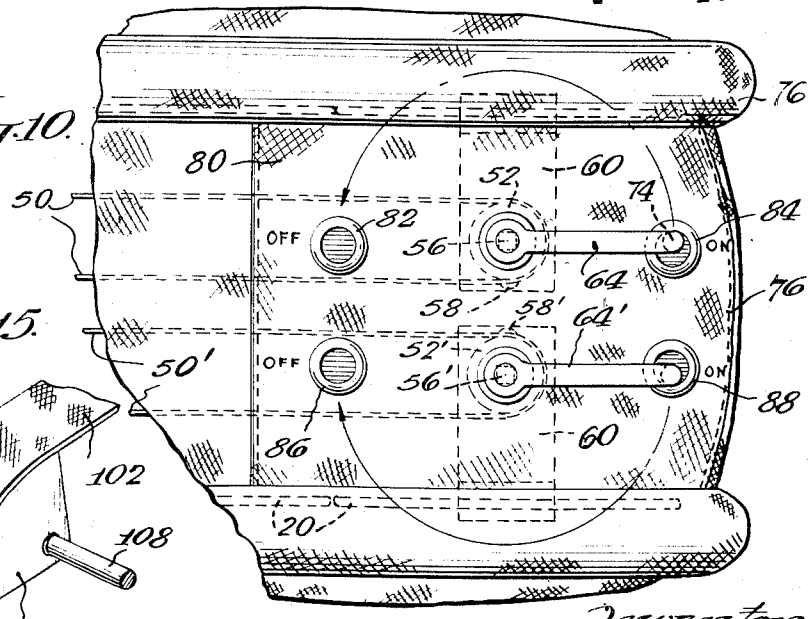


Fig. 10.



Inventor
Rexford A. Rozelle
By
Mann, Brown & Hanaman
Attorneys

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ADJUSTABLE INNERSPRING UNIT

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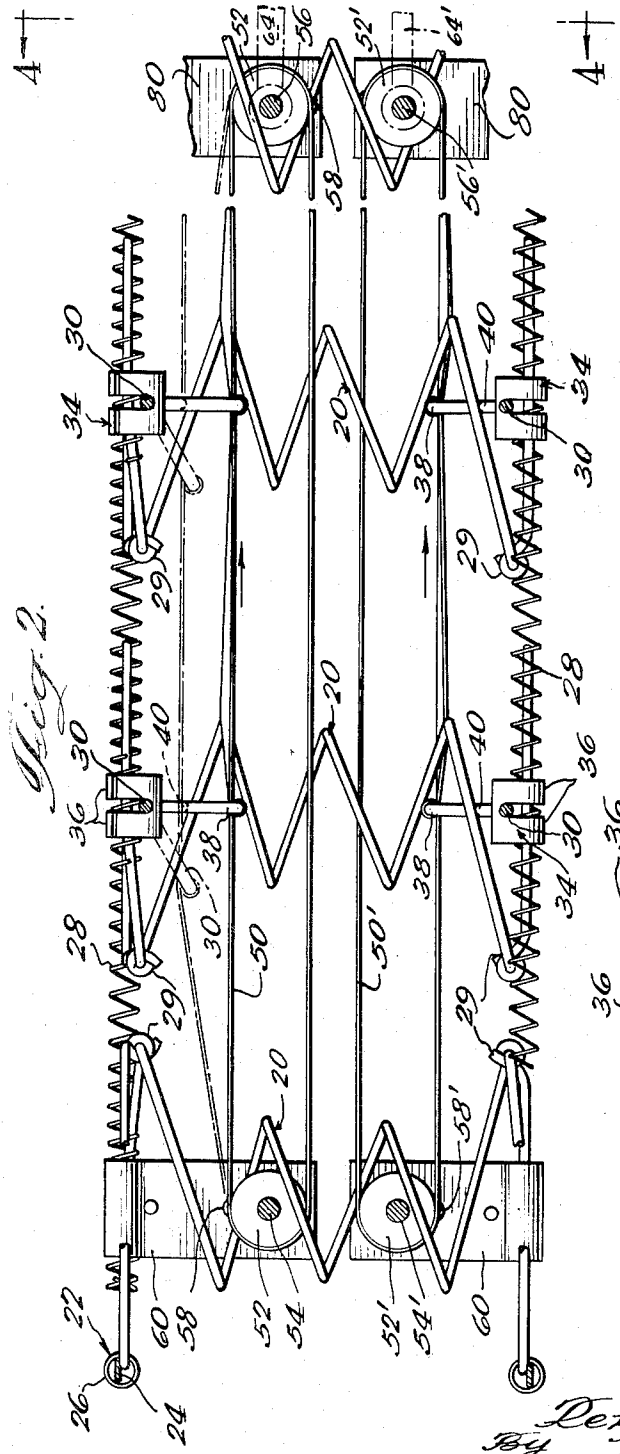


Fig. 2.

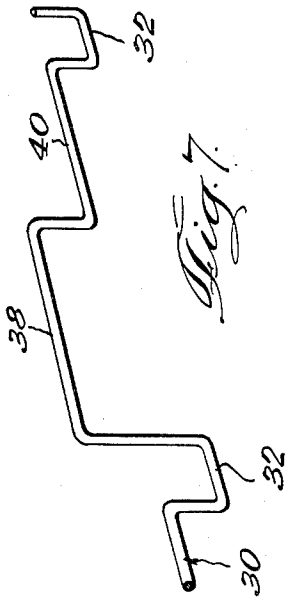


Fig. 7.

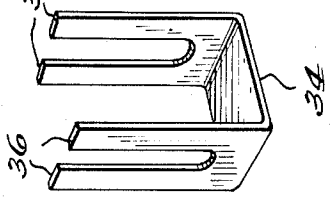


Fig. 6.

Inventor
Dexford A. Rozelle
By
Mann, Brown & Hanamann
Attorneys

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ADJUSTABLE INNERSPRING UNIT

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Fig. 4.

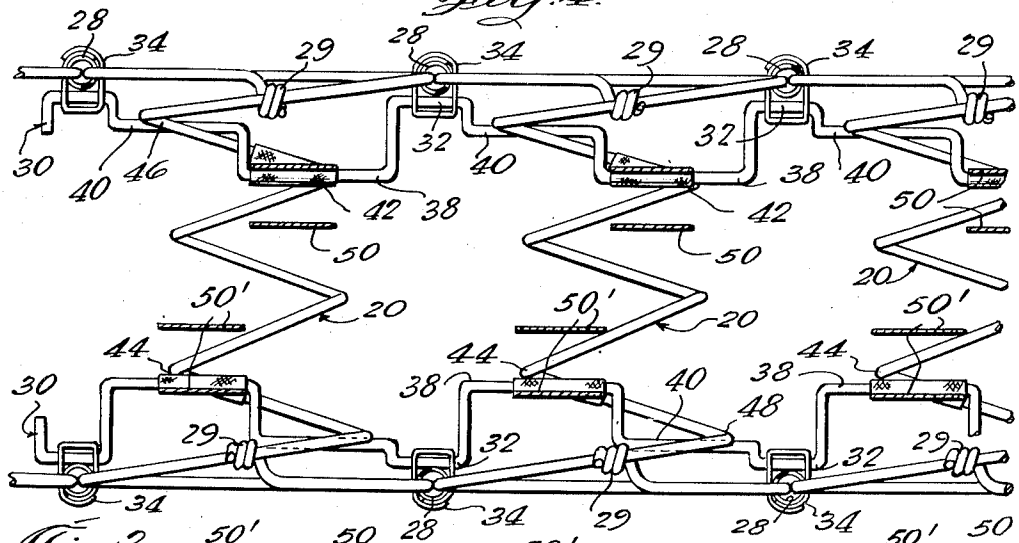
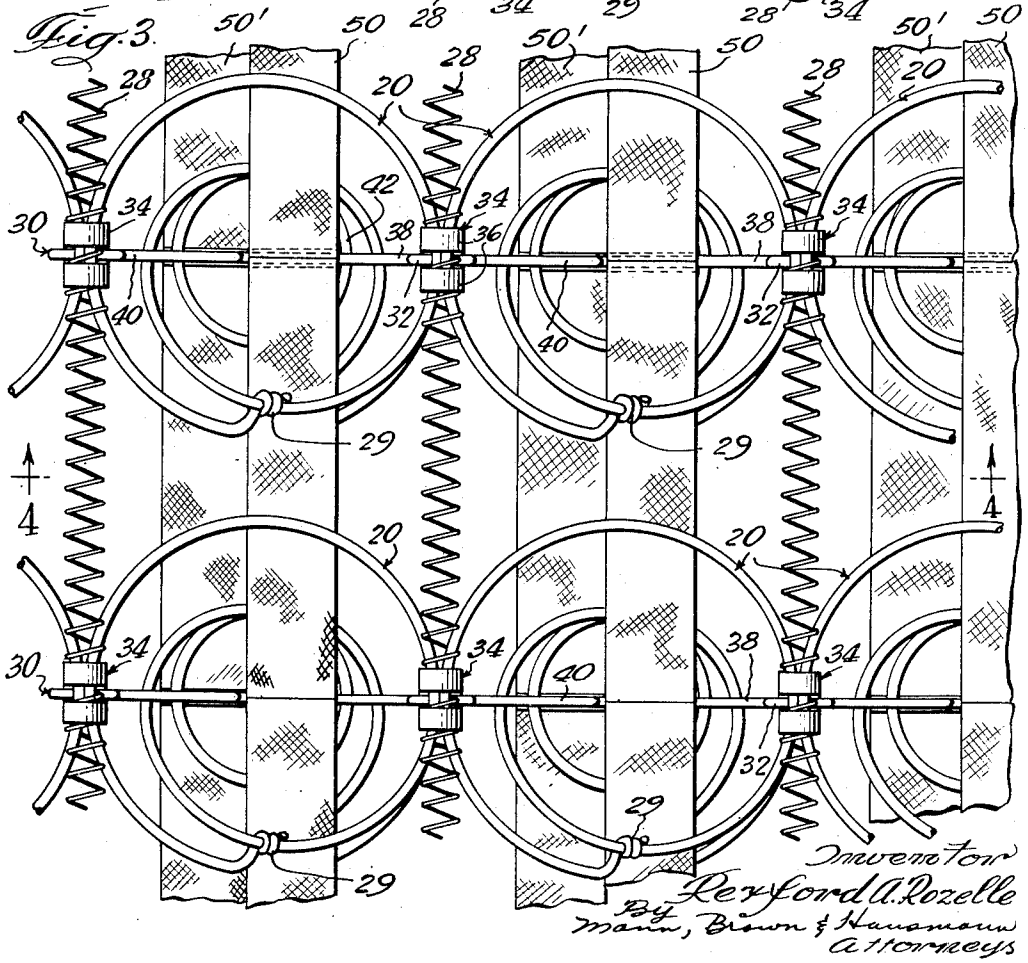


Fig. 3.



Inventor
Rexford A. Rozelle
By Mann, Brown & Hanamann
Attorneys

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ADJUSTABLE INNERSPRING UNIT

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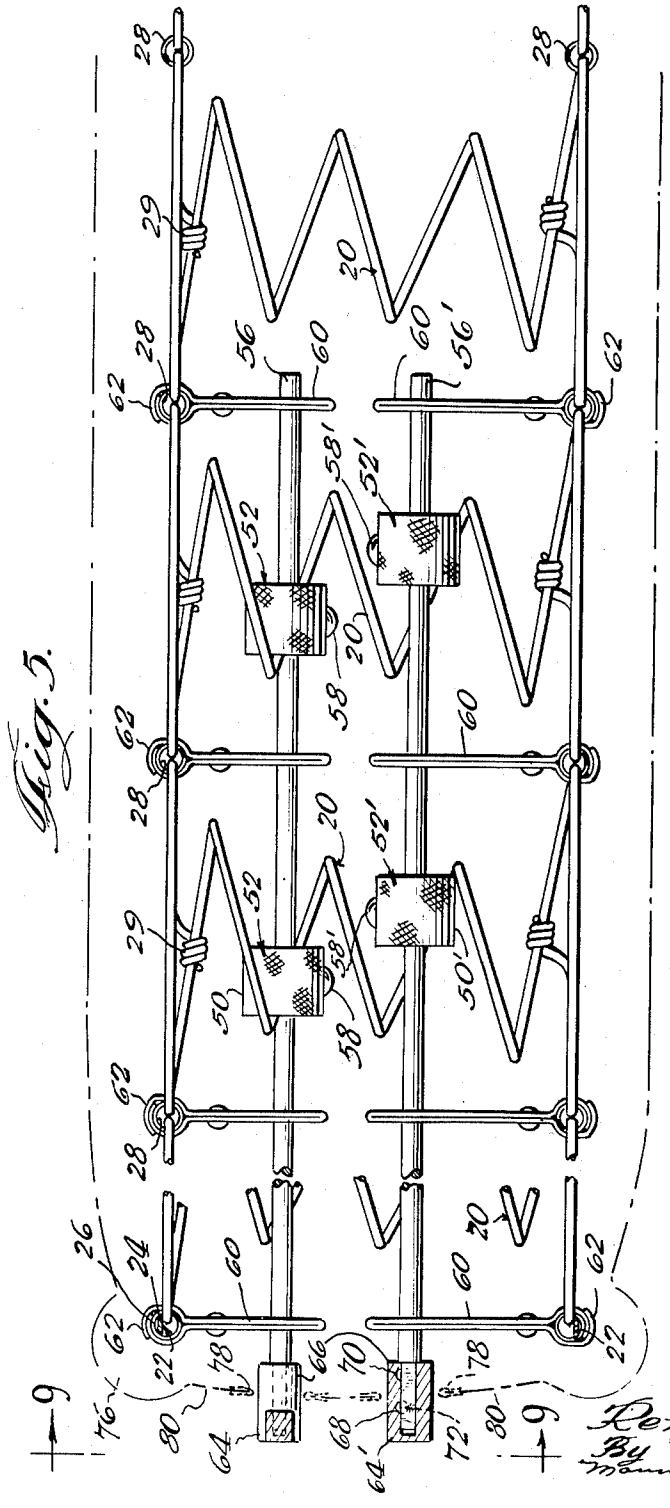


Fig. 5.

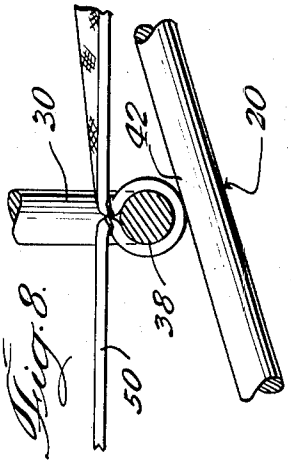


Fig. 8.

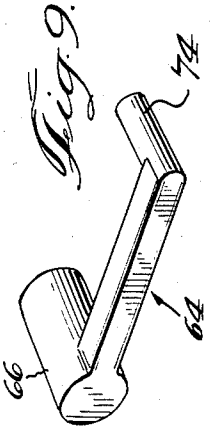


Fig. 9.

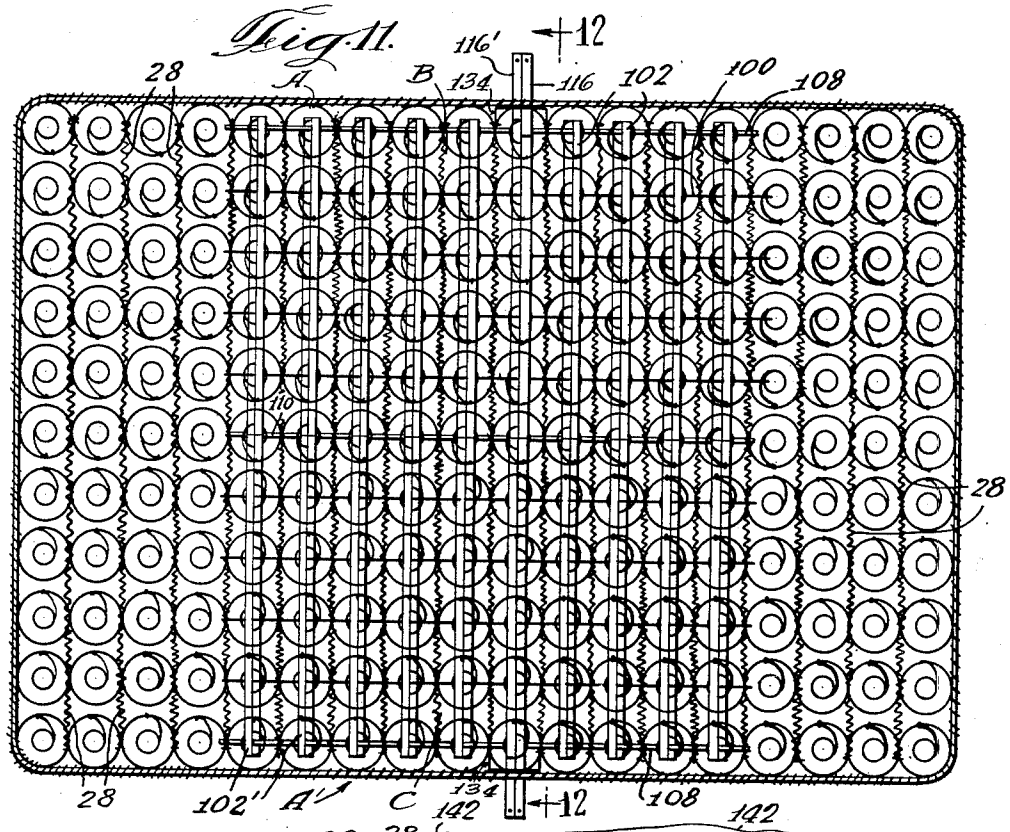
Inventor
Rexford A. Rozelle
By
Mann, Brown & Hausmann
Attorneys

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ADJUSTABLE INNERSPRING UNIT

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Fig. 11.



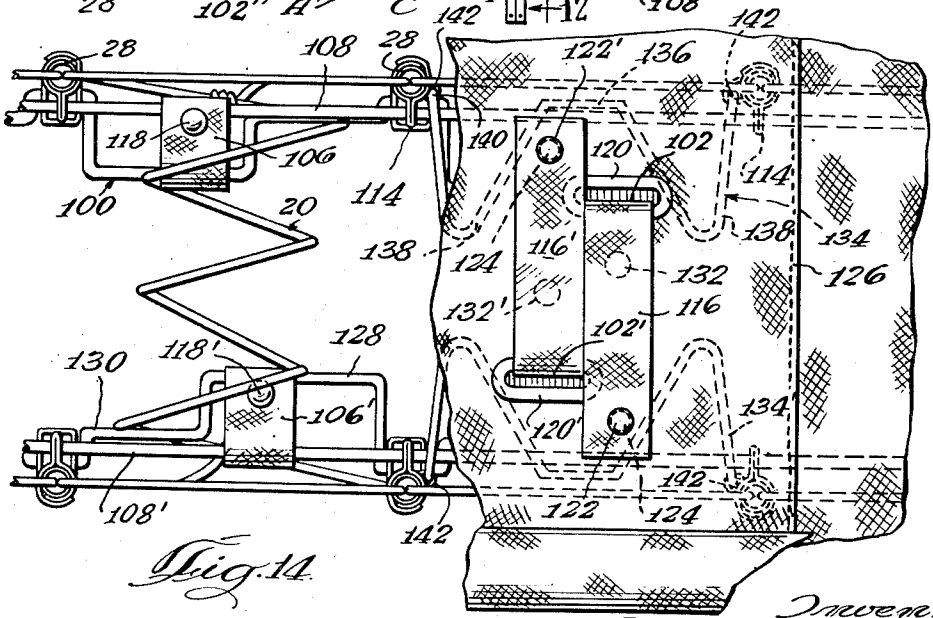


Fig. 14.

Inventor
Rexford A. Rozelle
By Mann, Brown & Hanscomb
Attorneys

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ADJUSTABLE INNERSPRING UNIT

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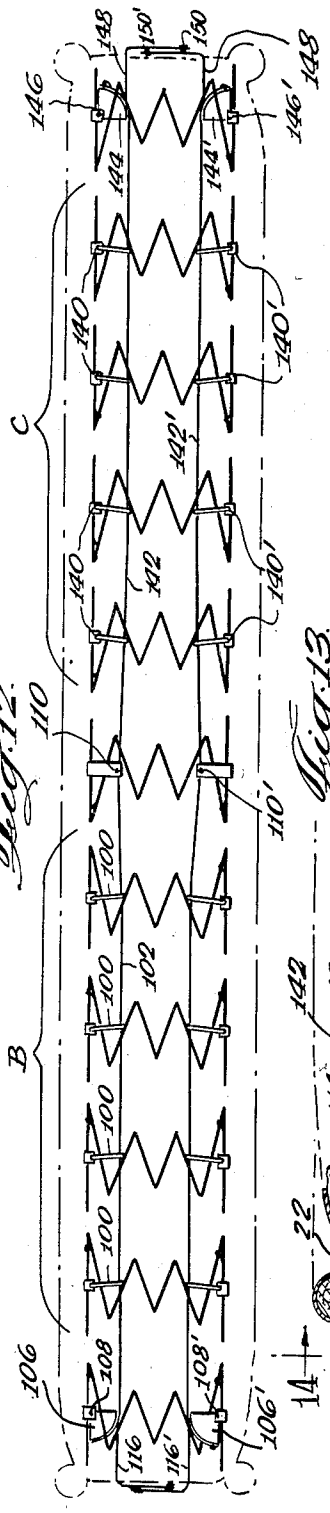


Fig. 12.

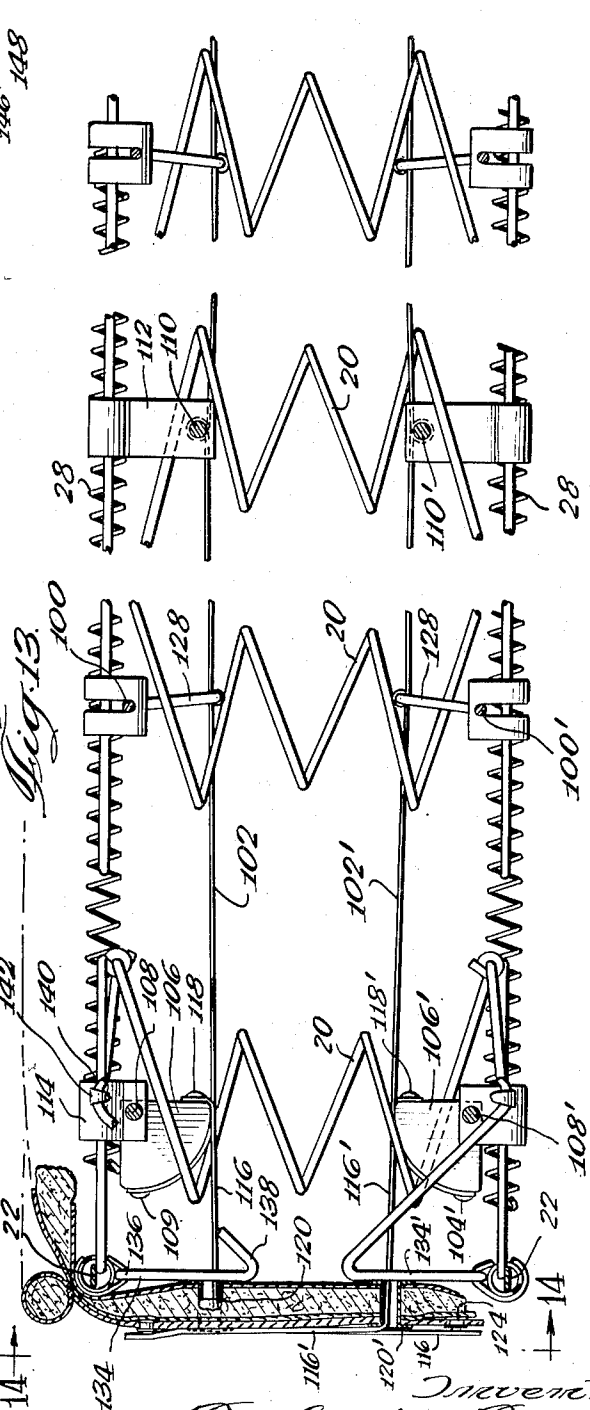


Fig. 13.

Inventor
Rexford A. Rozelle
By
Mann, Brown & Hanamann
Attorneys

United States Patent Office 2,773,270 Patented Dec. 11, 1956

2,773,270

ADJUSTABLE INNERSPRING UNIT

Rexford A. Rozelle, Chicago, Ill., assignor to Nachman Corporation, Chicago, Ill., a corporation of Illinois

Application September 13, 1952, Serial No. 309,438

19 Claims. (Cl. 5—253)

My invention relates to adjustable innerspring units particularly adaptable for mattresses, although capable of use for the seats and backs of furniture and for other similar purposes.

An object of my invention is to provide a new and improved innerspring unit whereby the user of a mattress can quickly and easily adjust the mattress to give any desired degree of resiliency.

Another object of my invention is to provide a new and improved adjustable innerspring unit which is of simple construction, inexpensive to manufacture, and easy to assemble into a completed mattress.

Another object of my invention is to provide an adjustable innerspring unit which will provide long and trouble-free use and which will not become noisy with long use.

Another object of my invention is to provide new and improved means for adjusting the resiliency of the innerspring unit and which can be so constructed as to provide adjustment for the whole or any part of the unit or different adjustments for different parts of the unit.

Other objects and advantages will become apparent as the description proceeds.

Fig. 1 is a diagrammatic top plan view of a complete mattress innerspring unit incorporating one embodiment of my invention;

Fig. 2 is a broken transverse vertical sectional view on an enlarged scale taken on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged top plan view of a part of the structure shown in Fig. 1;

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a side elevation, with parts broken away, looking in the direction of the arrows 5—5 of Fig. 1;

Fig. 6 is a perspective view of one of the shaft supports;

Fig. 7 is a perspective view of a resiliency adjusting shaft;

Fig. 8 is a detail view, partly in section, showing the manner in which the webbing is attached to one of the shafts;

Fig. 9 is a perspective view of one of the adjusting handles;

Fig. 10 is an enlarged partial side elevation of a completed mattress showing the arrangement of the adjusting handles;

Fig. 11 is a view similar to Fig. 1 but showing a modified form of my invention in which separate areas of the innerspring unit are independently adjustable;

Fig. 12 is a diagrammatic vertical sectional view taken on the line 12—12 of Fig. 11;

Fig. 13 is a partial view on an enlarged scale of the structure shown in the left-hand part of Fig. 12;

Fig. 14 is a side elevational view with parts cut away and is taken looking in the direction of the arrows 14—14 of Fig. 13; and

Fig. 15 is an enlarged perspective view of a detail of one of the adjusting shafts.

In Fig. 1 I have shown a typical innerspring unit for a mattress, such unit consisting of a multiplicity of rows A, each having a plurality of individual coil springs 20. In the particular unit shown there happen to be eighteen rows with ten individual springs in each row, but it is to be understood that the number of rows and the number of springs in the individual rows vary widely in different mattresses. My invention is not limited to any particular size of unit or a unit having any particular number of rows or springs but is applicable to all types of mattresses as well as spring cushions for other purposes.

In accordance with common practice the innerspring unit shown in Fig. 1 is provided with a border frame 22 which is shown more fully in Figs. 2 and 4 and comprises a flat wire 24 secured by a helical tie wire 26 to the top and bottom coils respectively of the marginal springs. The top and bottom coils of the springs forming the rows A are ordinarily connected together, and in the particular instance shown, this connection is effected by helicals 28, although other securing means may be used in lieu thereof.

The individual coil springs 20 are preferably of the hour-glass type in which the top and bottom coils are of larger diameter and easier to compress than the center coils. The ends of each spring are knotted to adjacent convolutions as indicated at 29 in Figs. 2 through 5. In Fig. 1 the springs have merely been indicated in outline form and the knotted ends and individual convolutions are not shown. I shall now describe my novel means for rendering either the top coil or bottom coil, or both, substantially rigid, thereby to reduce the resiliency or softness of the innerspring unit and the mattress or cushion in which it is incorporated to suit the particular needs or desires of the user.

This novel means comprises a plurality of resiliency-varying shafts 30 (Figs. 1, 2, 3, 4, and 7) having journals 32 supported in bearing clips 34. Figure 6 shows one of these bearing clips prior to installation. Each clip includes two pairs of fingers 36 adapted to be wrapped about the contiguous portions of end coils of adjacent springs and the connecting helical, as clearly shown in Figs. 3 and 4.

In addition to the journal portions 32, each of the shafts 30 has a plurality of major offsets 38 and the same number of minor offsets 40. Each of the shafts 30 extends lengthwise of the mattress unit and has the same number of major and minor offsets as the number of rows A which it crosses and with which such shaft is intended to cooperate. In Fig. 1, I have shown an innerspring unit for a mattress in which resiliency-control shafts are associated with only the ten central rows. These ten rows carry the heavier parts of the body of a sleeper and ordinarily are the only rows requiring adjustment to give the desired degree of softness or hardness.

A shaft 30 extends crosswise of each of these ten rows adjacent the top of the innerspring unit and a second shaft 30 extends crosswise of each of these rows adjacent to the bottom of the innerspring unit. Since a sleeper does not ordinarily lie immediately adjacent the lateral edges of a mattress, it is not necessary to control the end springs of each row. Only sixteen shafts 30 are therefore needed for a unit ten springs wide and each shaft has been made of appropriate length to control only the ten center rows, which means that each of the shafts 30 in this particular embodiment would have ten major offsets 38 and ten minor offsets 40 and eleven journal portions 32.

The shafts 30 are mounted in the bearing members 34 for pivotal or rotary movement through an arc of less than 90°. When the major and minor offsets are in a substantially vertical position as shown in Figs. 2, 3 and 4, the major offset engages the second convolution of the spring as measured from the adjacent end. For ex-

ample, in Fig. 4 the major offset of the upper shaft engages at 42 the second convolution counting downwardly from the top of the spring; likewise, the major offset of the lower shaft 30 engages at 44 the second convolution counting upwardly of the same spring. At the same time the minor offsets 40 engage intermediate portions of the end coils as indicated at 46 and 48 in Fig. 4.

When the shafts 30 are in this vertical position they render the end coils of the springs rigid and incompressible and the resiliency of that part of the spring unit controlled by the shafts 30 is then limited to such resiliency as is afforded by the coils between the points 42 and 44 (Fig. 4). Since these are the smallest and stiffest coils in each spring, the resiliency of the unit is greatly reduced and a relatively hard or stiff mattress is provided. On the other hand when the shafts 30 are rotated to the position shown in phantom lines in Fig. 2, the end coils of the springs are free to compress and a mattress of maximum softness is provided. Intermediate degrees of hardness is effected by having one shaft 30 of each row of springs in the inactive position indicated by phantom lines in Fig. 2 and the other shaft of each row in the operative position shown in full lines in this figure.

While it might appear that the same effect is produced when the upper spring coils are made rigid and the lower spring coils are free to compress, as when the opposite arrangement is in effect, this is not correct. A person lying on the mattress gets a softer feeling when the upper spring soils are free to compress and the lower spring coils are rigid than when the opposite arrangement obtains. It will therefore be apparent that my invention provides four different degrees of hardness or comfort, the greatest hardness being present when both the upper and lower coils are rendered rigid; the next hardest arrangement being when the upper coils are rigid and the lower coils are free to compress; the softest arrangement being when both top and bottom coils are free to compress; and the next softest when the top coils are free to compress and the bottom coils are rigid.

Each resiliency-controlling shaft could be provided with a separate adjustment but for practical purposes I have found it desirable to provide a single adjustment or control for all of the upper shafts 30 and another single but separate control for all of the lower shafts. I shall now describe this novel control.

The aligned major offsets 38 of all of the upper shafts are connected by webs, ropes, cables, or the like, 50 which may be of plastic or metal or braided or woven wires, or strands of vegetable, animal, or synthetic fibers, or other suitable material. One way in which this webbing may be wrapped around and stitched to envelop a major offset 38 of one of the resiliency-control shafts is indicated in Fig. 8 but it is to be understood that any other suitable means of securing the webbing to the offsets may be utilized. Each web 50 preferably forms a continuous loop having opposite ends passing around arcuate or cylindrical supports 52 attached to shafts 54 and 56. Rivets 58 or other means are provided to attach a web to one or both of its supports 52 so that the webs may be shifted by rotating the shaft to which the supports 52 are attached.

The aligned major offests of each of the lower shafts are also connected by similar webs 50' whose ends pass around supports 52' mounted on shafts 54' and 56'. The webs 50' are attached to their supports 52' by rivets or other suitable means 58'. It will be noted that the upper web 52 for a given row of springs is laterally offset with respect to the lower web 52' for such row. The shafts 54, 54', 56 and 56' are mounted in hangers 60 having pairs of fingers 62. These fingers 62 are similar to the fingers 36 of the bearing members 34 and are attached to the innerspring unit in the same manner.

In order to shift the resiliency-control rods 30 between operative and inoperative position, the operating shafts 56 and 56' are provided with crank handles or other rotating means. In the particular embodiment shown, the operating shafts 56 and 56' are provided with operating handles 64 and 64' respectively (Figs. 5 and 9). Each of these handles is identical and comprises a hub portion 66 having a rectangular opening for slidably receiving the reduced rectangular end of one of the shafts 56 or 56'. Each hub 66 is provided with a pair of recesses 68 and 70 (Fig. 5) either of which is adapted to be engaged by a spring-pressed detent 72 carried by the reduced end of one of the operating shafts, the construction being such that the hub 66 of a handle may be slid lengthwise of its operating shaft to cause the detent 72 to engage either the recess 68 or the recess 70. Each handle is also provided with an inturned end 74 (Fig. 9) for locking its operating shaft in either operative or inoperative position in a manner now to be described.

Referring to Figs. 5 and 10, it will be seen that each operating shaft projects through the mattress cover 76 and supporting padding which envelops the innerspring unit. The mattress cover may be provided with eyelets or grommets 78 at the points where the operating shafts extend therethrough and may also be provided with a reinforcing strip 80 adjacent thereto.

Referring to Fig. 10, it will be seen that the side wall of the mattress is also provided with eyelets or grommets 82 and 84 located in a horizontal plane on opposite sides of the operating shaft 56, and similar eyelets or grommets 86 and 88 on opposite sides of the operating shaft 56'. In this Fig. 10 both shafts are in operating position and the handles 64 and 64' are pressed inwardly with their ends 74 projecting into the grommets 84 and 88 respectively.

To turn the operating shaft 56 to inoperative position, handle 64 is pulled outwardly so that detent 72 engages notch 70. This removes end 74 from grommet 84 and permits handle 64 and shaft 56 to be rotated until the end of the handle is opposite grommet 82. The handle is then pushed inwardly so that end 74 projects into grommet 82 and notch 68 is engaged by detent 72 to hold the handle in this position. Shaft 56' is shifted between operative and inoperative position in the same manner. While I have shown a simple and convenient means for holding the operating shafts and the resiliency varying shafts connected therewith in either operative or inoperative position, it is to be understood that any other suitable means may be used in lieu thereof.

In the embodiment of Figs. 1 to 10 inclusive, the resiliency adjusting shafts are positively moved both toward and from operative position, and with this type of construction it is preferable to move the resiliency varying shafts slightly beyond the vertical position so that weight on the mattress tends to lock these shafts more firmly in operative position and thereby relieves the webs of the strain which is imposed upon them if the resiliency adjusting shafts are held exactly in vertical position or slightly short thereof. While in this embodiment I prefer to have the resiliency adjusting shafts slightly beyond the vertical when in operative position, this is not essential and the construction of these figures can be designed to hold the resiliency adjusting shafts in exactly vertical position or slightly to either side thereof.

In Fig. 11, I have shown a double bed mattress having two independently adjustable sections B and C so that each occupant of the bed may adjust his particular section of the mattress to conform to his individual needs or desires independently of his bedfellow. Each adjustable section controls four springs in each of the ten center rows A'. The end springs and the center spring of each row A' are not adjustable.

In this embodiment of my invention the upper resiliency adjusting shafts 100 in the adjustable section B are connected by webs 102 attached to the major offsets of these shafts in the manner previously described, or in any other suitable way. The webs 102 are not con-

tinuous as in the previous embodiment. One end of each web 102 is attached at 109 to an arcuate support 106 mounted on an operating shaft 108 for rotation therewith. The opposite end of each web 102 is attached to a centrally located limit shaft 110 mounted in hangers 112 somewhat longer than, but otherwise similar to, the hangers 114 for the operating shaft 108. One of the supports 106 mounted on the operating shaft 108 may be in the form of a double support, as shown in Fig. 15, and has a pull or operating tape 116 secured thereto at 118 (Fig. 13). This tape extends through a ferrule 120 in the adjacent portion of the side wall of the mattress and has a downturned end provided with a snap fastener 122.

In Figs. 12, 13 and 14 the snap fastener 122 is shown as engaging a lower button 124 attached to the mattress cover and a reinforcing strip 126 therefor. In this position of the pull tape 116, the operating shaft 108 and all of the resiliency varying shafts connected thereto are held in the operative position in which the major and minor offsets 128 and 130 respectively engage the end convolutions of their respective springs and render such convolutions rigid. As clearly shown in Fig. 13, however, the major and minor offsets of these resiliency adjusting shafts are not truly vertical, but are just short of vertical position.

In order to render the resiliency adjusting shafts 100 inoperative, the fastener 122 is disengaged from button 124 thereby permitting operating shaft 108 to rotate in a counterclockwise direction and releasing the pull on the webs 102. This permits the resiliency varying shafts 100 to rotate in a counterclockwise direction to inoperative position and such rotation will result from the camming action of the spring convolutions on the slightly inclined offsets of these resiliency varying shafts 100. The webs 102 and the pull tape 116 may remain completely loose when the shafts 100 are in inoperative position. Since the loose end of the pull tape would give an unattractive appearance to some people, I preferably provide an upper or off-positioned button 132 to which the fastener 122 may be secured to give a more tailored appearance.

The shaft 110 does not retract the webs 102 which remain loose. This shaft serves merely as a limit-stop to prevent these webs from pulling the major and minor offsets of the resiliency adjusting shafts to a truly vertical position or therebeyond. In other words in this form of my invention it is important that the resiliency supporting shafts be just short of vertical when in the operating position.

Because the webs 102 and 116 are under tension when their resiliency controlling shafts are in operative position, there is a tendency for the web 116 to pull that part of the mattress side wall to which it is attached into the spaces between convolutions of the adjacent springs. In order to avoid this I have provided a padding support 134 (Figs. 13 and 14) having a central portion 136 secured to the border frame and downwardly extending wings 138 terminating in reversely bent ends 140 attached at 142 to two of the supports 114 for the operating shaft 108.

The lower set of resiliency adjusting shafts 100' of adjustable section B are similarly connected by webs 102' having their forward ends attached at 104' to supports 106' attached to an operating shaft 108'. The operating shaft 108' is pulled to operative position by a tape 116' extending through ferrule 120' and terminating in a fastener 122' adapted to engage either a button 124' for holding the tape and associated parts in operative position or an off-button 132'. The other end of the tapes 102' are attached to a limit shaft 110'. A second fabric support 134' is provided to prevent the tape 116' from pulling the padding at the side of the mattress in between the convolutions of the adjacent coil springs.

Referring to Figs. 11 and 12, it will be seen that the

adjustable section C is of the same construction as adjustable section B and has upper resiliency control shafts 140 connected by webs 142. Each web 142 has an end attached to the limit-shaft 110, and a second end attached to a support 144 rotatable with an operating shaft 146. A tape pulls the operating shaft 146 and all of the resiliency control shafts attached thereto to operative posing position. Likewise, the lower resiliency control shafts 140' are connected by webs 142' attached to supports 144' on operating shaft 146' having a tape 148' provided with a fastener 150' for locking the parts in operative position. The opposite ends of the webs 142 and 142' are attached to limit shafts 110 and 110' respectively to prevent the webs 142 and 142' from pulling the resiliency adjusting shafts into truly vertical position or therebeyond.

While my novel means for making rigid selected convolutions of certain or all of the springs of a unit may be applied to a unit having various kinds of coil springs, it is only where the coil springs are of the hour-glass type, or are otherwise so constructed that certain coils are more resilient than others that the greatest variation in resiliency occurs. If the springs are of a construction in which all of the coils are of the same resiliency, the application of my invention thereto would afford less variation in resiliency. It is also important that the ends of the coil springs be knotted, as shown, or otherwise rendered relatively firm, where the end coils are to be controlled by my resiliency varying means.

Where my novel spring adjustment is incorporated in a seat cushion or back, it will ordinarily be preferable to adjust all of the springs of the unit although the adjustable part may be limited to less than the whole number of springs in the unit where this is desirable.

From the foregoing it will be apparent that I have provided a simple and inexpensive adjusting means which can be incorporated in conventional innerspring units as well as specially designed units. My novel adjusting means adds little weight to the innerspring unit and by virtue of its rugged construction affords long and trouble-free service. Another important feature of my invention resides in the provision of adjustment means which is quiet and does not become noisy throughout the normal use of the innerspring unit, mattress, furniture, or like articles in which it is incorporated.

It is to be understood that my invention is not limited to particular details shown and described but may assume numerous other forms, and includes all modifications, variations and equivalents coming within the scope of the appended claims.

I claim:

1. An adjustable innerspring unit of the class described comprising a plurality of rows of coil springs in which each spring is of hour-glass shape and consists of a plurality of convolutions, means for securing together said rows, border frames surrounding said rows and attached thereto, pairs of shafts extending crosswise of certain of the center rows, bearing members suspending one of each pair of shafts from the upper ends of adjacent springs, and other bearing members connecting the other shaft in each pair to the lower ends of adjacent springs, each of said shafts having a plurality of major offset portions and a similar number of minor offset portions, continuous flexible webs connecting the aligned major offset portions of the upper shafts, continuous flexible webs connecting the aligned major offset portions of the lower shafts, arcuate supports attached to said webs, operating shafts carrying said arcuate supports, hangers attached to said innerspring unit and carrying said last-named shafts, means for rotating said last-named shafts to move said webs and shift said first-named shafts between inactive and active position, the major and minor offsets of said first-named shafts engaging and rendering rigid end convolutions of coil springs adjacent said shafts, and means for locking all of said shafts in different positions.

2. An adjustable innerspring unit of the class described

comprising a plurality of rows of coil springs, said springs having end convolutions of greater resiliency than other convolution, means for securing together said rows, border frames surrounding said rows and attached thereto, a pair of shafts extending crosswise of certain of said rows, bearing members supporting said shafts in upper and lower planes, each of said shafts having a plurality of major offset portions and a similar number of minor offset portions, continuous flexible webs connecting the aligned major offset portions of the upper shafts, continuous flexible webs connecting the aligned major offset portions of the lower shafts, operating shafts for shifting said webs and first-named shafts, hangers attached to said innerspring unit and carrying said last-named shafts, means for rotating said last-named shafts to move said webs and shift said first-named shafts from inactive to active position, the major and minor offsets of said last-named shafts engaging and rendering rigid end convolutions of coil springs adjacent said shafts, and means for locking all of said shafts in different positions.

3. An adjustable innerspring unit of the class described comprising a plurality of rows of coil springs in which each spring consists of several convolutions with the end convolutions being the least rigid, means for securing together said rows, pairs of shafts extending crosswise of said rows, bearing members suspending one of each pair of shafts to the upper ends of adjacent springs, and other bearing members connecting the other shaft in each pair to the lower ends of adjacent springs, each of said shafts having a plurality of major offset portions and a similar number of minor offset portions, means connecting the aligned major offset portions of the upper shafts, means connecting the aligned major offset portions of the lower shafts, operating means for moving said two last-named means and rotating said shafts from inactive to active position, the major and minor offsets of said last-named shafts engaging and rendering rigid end convolutions of coil springs adjacent said shafts, and means for locking said shafts in different positions.

4. An adjustable innerspring unit of the class described comprising a plurality of coil springs each having convolutions of different degrees of resilience, shafts extending through said springs, bearing members supporting said shafts, each of said shafts having a plurality of offset portions, flexible means connecting the offset portions of the shafts, and means for moving said flexible means and shifting said shafts from inactive to active position, the offsets of said last-named shafts engaging and rendering rigid convolutions of coil springs through which said shafts extend.

5. An adjustable innerspring unit of the class described comprising rows of coil springs, means for securing together said rows, said coil springs being of the hour-glass type, upper and lower movable means for rigidly blocking the respective upper and lower end convolutions of said springs against compression, means including a hand control for operating said upper movable means and thereby adjusting the upper end convolutions of said springs, means including a separate hand control for operating said lower movable means and thereby adjusting the lower end convolutions of said springs, and means for locking said hand controls in different positions.

6. An adjustable innerspring unit of the class described comprising a group of coil springs, means for securing together said springs, said coil springs being of the hour-glass type, a plurality of movable means for blocking end convolutions of respective sub-groups of said springs against compression, means for independently moving said last-named means for each sub-group between inoperative and operative position, and means for locking said movable means in operative position.

7. An adjustable innerspring unit of the class described comprising a group of coil springs, means for securing together said springs, said coil springs being of the hour-glass type, movable means acting directly on end coils of said springs for blocking said end coils against flexing movement, means for moving said last-named means between inoperative and operative position, and means for locking said movable means in operative position.

8. An adjustable innerspring unit of the class described comprising a plurality of connected coil springs, said springs having less rigid convolutions, movable means acting individually on said less rigid convolutions for making said less rigid convolutions rigid, means for moving said last-named means between inoperative and operative position, and means for locking said movable means in operative position.

9. An adjustable innerspring unit of the class described comprising a plurality of coil springs in which each spring consists of a plurality of convolutions at least one of which is relatively more flexible than other convolutions, means for blocking the more flexible convolutions of said springs against compression and locking means for locking said last-named means.

10. In an innerspring unit of the class described the combination of a plurality of coil springs, means for holding said springs in assembled position, and means for rendering certain convolutions of said springs incompressible, said last-named means including generally U-shaped wire spacing elements movable between convolutions of said springs for holding said convolutions apart.

11. An adjustable innerspring unit of the class described comprising an assembly of coil springs, a web extending through convolutions of said springs in a plane perpendicular to the axes thereof, means for shifting said web, and means operated by said web for preventing compression of convolutions of said springs.

12. An adjustable innerspring unit of the class described comprising a plurality of rows of coil springs, means for holding said rows in assembled relationship, a continuous web extending through convolutions of said springs in a plane perpendicular to the axes thereof, means for shifting said web, means operated by said web for preventing compression of convolutions of said springs, and means for holding said web and last-named means in different positions.

13. In an innerspring unit of the class described the combination of an assembly of coil springs, a shaft extending through a plurality of said springs, means on said shaft for making rigid a convolution of each spring through which the shaft passes, a web for moving said shaft from inoperative to operative position, means secured to one end of said web for limiting movement of said shaft by said web, and means for holding said web in operative position.

14. In a mattress having an innerspring unit comprising an assembly of coil springs, a shaft extending through certain of said springs, said shaft having means for changing the resiliency of convolutions of said springs, means for moving said shaft from inoperative to operative position, said last mentioned means including a flexible member extending through a wall of said mattress, means for securing said flexible member to the outside of said wall for holding said shafts in operative position, and reinforcing means for said wall adjacent said flexible member.

15. In a mattress having an innerspring unit comprising an assembly of coil springs, the combination of means extending through said springs for varying the resiliency thereof, an operating shaft, means connecting said operating shaft with said first-named means, said operating shaft extending through a wall of said mattress, a handle attached to said operating shaft, means for holding said handle in different longitudinal positions on said operating shaft, said handle having an inturned end, and means provided by said mattress wall for engaging said end to hold said shaft in different positions.

16. An innerspring unit of the class described comprising an assembly of coil springs having closed ends, movable means for varying the resiliency of one area of said innerspring unit, movable means for varying the resiliency

of another area of said innerspring unit, webs for shifting said movable means for inoperative to operative position, a common limit stop for anchoring each of said webs, and separate operating means for the webs of each area.

17. In an adjustable spring unit, the combination comprising a plurality of compressible coil springs, each of said springs having a plurality of spaced convolutions, means for supporting said springs in a plurality of rows, a plurality of members mounted for movement with respect to at least some of said springs, each of said members being movable with respect to one of said springs between an active position with said member disposed between two of said convolutions for blocking compression thereof and an inactive position with said member moved from between said convolutions, said members thereby being effective to vary the overall resilience of the respective springs, and selectively operable means connected to said members for operating said members in common and thereby varying the hardness of said spring unit.

18. In an adjustable spring unit, the combination comprising a plurality of compressible coil springs, each of said springs having a plurality of spaced convolutions, means for supporting said springs in a plurality of rows, a plurality of interconnected adjusting members mounted for selective concurrent movement with respect to at least some of said springs, each of said members being movable with respect to one of said springs between an active position with said member disposed between two

of said convolutions for blocking compression thereof and an inactive position with said member moved from between said convolutions, said members thereby being effective to vary the overall resilience of the respective springs.

19. In an adjustable spring unit, the combination comprising a compressible coil spring having a plurality of spaced convolutions, and an adjusting element mounted for movement between an active position with said element disposed between two of said convolutions for restricting compression thereof and an inactive position with said element moved from between said convolutions, said adjusting means thereby being effective to vary the overall resilience of said spring.

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