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2,560,018

COMBINATION BOX SPRING AND MATTRESS

Filed March 12, 1947

2 Sheets-Sheet 1

Fig. 1.

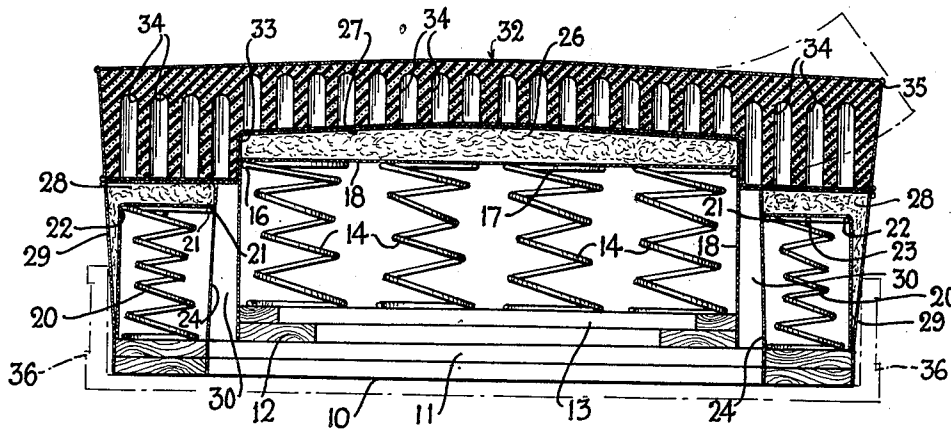
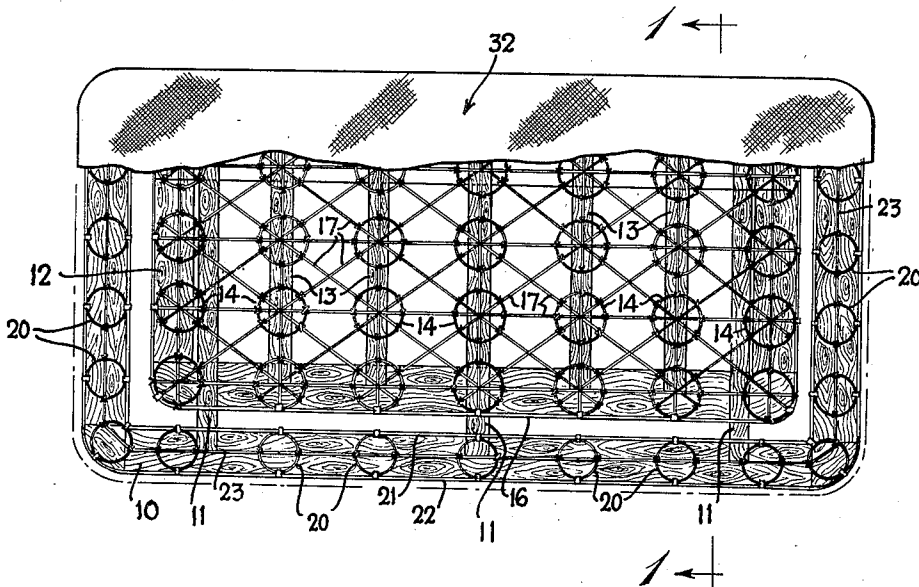


Fig. 2.



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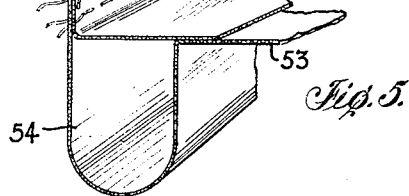
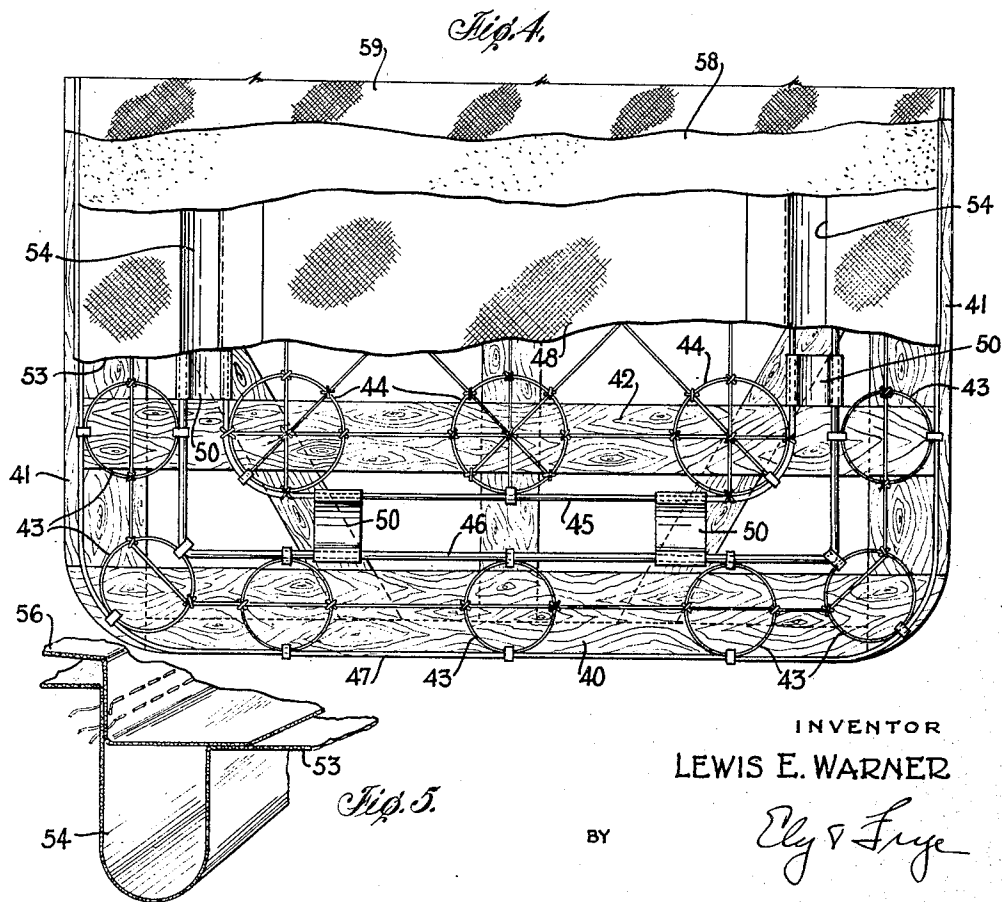
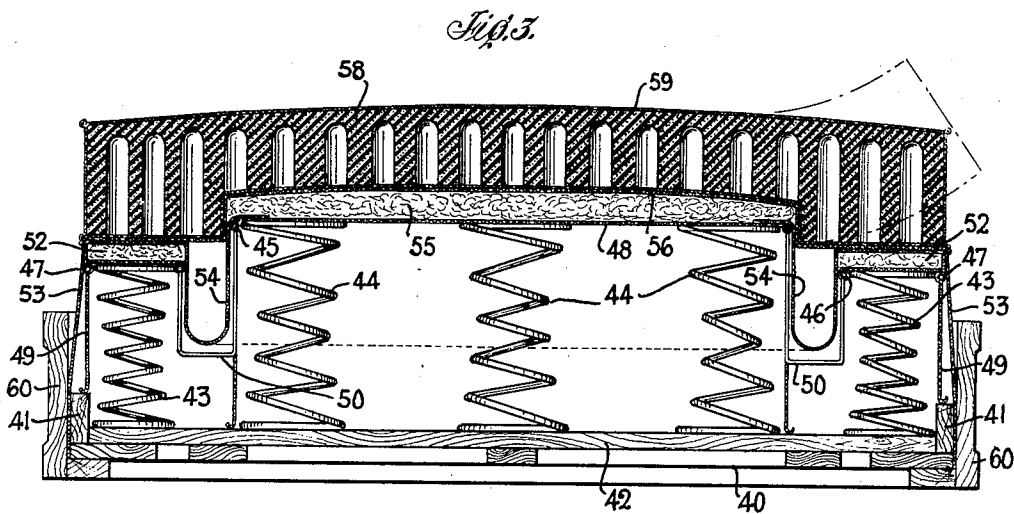
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COMBINATION BOX SPRING AND MATTRESS

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5 Claims. (Cl. 5—351)

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This invention relates to combination box springs and mattresses for beds, and more especially it relates to the combination of a novel box spring structure and a novel mattress structure that mutually cooperate to provide sleeping equipment of superior characteristics.

The mattress structure of the invention preferably is composed of molded, vulcanized, porous or cellular rubber composition, for example, foamed rubber latex. A salient feature of the invention is that the confronting surfaces of the box spring unit and mattress unit are not substantially flat as in conventional structures of the character mentioned, but have local complementary offset portions that interfit in the combination structure and provide an advantageous interlock as subsequently will be explained.

The chief objects of the invention are to enable the use of thinner mattress composition throughout the major portion of the mattress, thereby affecting economy of material; to provide a mattress of sufficient depth appearance to have universal appeal to the public, who believe that mattress comfort is in direct proportion to the depth of the mattress; to provide a mattress which is "tailored" to a box spring and cannot shift relatively thereof; to provide increased comfort to the users of mattresses; to provide a combination structure of the character mentioned, that is, of neat appearance at all times; to provide a combination structure of the character mentioned that includes an invisible but quickly accessible recess at ends and sides for reception of bed clothing; that obviates the labor of turning or reversing the mattress; and to provide a combination box spring and mattress that will have adequate resilience in the medial portion thereof for sleeping comfort, yet will not sag at its marginal portions where most wear occurs. Other objects will be manifest as the description proceeds.

Of the accompanying drawings:

Fig. 1 is a section of the improved combination box spring and mattress on the line I—I of Fig. 2, the location of a bed structure supporting the structure of the invention being indicated in broken lines;

Fig. 2 is a plan view of the combination structure shown in Fig. 1, parts being broken away to reveal underlying structure;

Fig. 3 is a transverse section similar to Fig. 1 of a modified embodiment of the invention;

Fig. 4 is a fragmentary plan view of the structure shown in Fig. 3, parts being broken away; and

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Fig. 5 is a detail sectional perspective view of the recess or pocket in which bed clothes are receivable.

Referring to Figs. 1 and 2 of the drawings, it will be seen that the springs portion of the combination structure comprises a wood base frame 10 of general rectangular shape, which frame includes a plurality of transverse slats 11 upon which a wood secondary or center frame 12 of similar shape and smaller area is mounted and secured, said frame 12 comprising a plurality of transverse slats 13, 13. Mounted upon the center frame 12, including the slats 13 thereof, are parallel rows of double-cone coiled wire springs 14, 14. As shown, there are seven rows of springs and four springs in each row, but the arrangement may be varied in structures of different size. A border 16 of heavy wire encircles the group of springs 14 and is tied to the top convolution of each spring with which it is in contact. The springs 14 are tied together with twine 17, there being eight knots to each spring. The spring structure described is covered with burlap 18, or duck or drill of equivalent quality, said burlap being stitched to the border wire 16, and having its margin secured to the frame structure 12. The burlap cover holds the springs 14 under appreciable determinate compressive stress, as is common practice in this art.

In like manner a series of double-cone coiled wire springs 20, 20 are mounted upon the base frame 10, said springs being aligned with the ranks and files of the springs 14, and also located at the respective corners of the frame. The upper coil of each spring 20 is tied to two heavy border wires 21, 22, both of which are endless and encompass the central structure of the mattress. The springs 20 also are tied to adjacent springs of the series by twine 23. Like the springs 14, the springs 20 are covered and held under determinate compressive stress by burlap 24 that is stitched to the border wires 21, 22 and suitably secured to the structure of the base frame 10. The marginal series of springs 20 has greater resistance to deflection than the springs 14. This may be achieved by making them of heavier gauge wire, by employing more coils in each spring, by placing them normally under greater compressive stress, or by a combination of any or all of the methods described.

Upon the top of the central spring structure is upholstery 26 composed of cotton felt, and covered with the usual mattress ticking 27 that is stitched to the burlap spring cover 18. The said upholstery has a slight crown longitudinally

of the mattress. The marginal spring structure comprising the springs 20 has upholstery 28 of cotton felt upon the top thereof, which upholstery extends about one-half inch beyond the outer margin of base frame 10 at each side thereof, and tapers downwardly toward the latter as shown. The upholstery 28 is covered with the usual mattress ticking 29.

It will be observed that in the construction described, the central spring structure is independent of and separate from the marginal spring structure, and that they are separated by a space 30 that is substantially two inches in width and of substantial depth at all points. For convenience of manufacture, the central frame 12 and base frame 10 may be upholstered as described before the central frame is assembled with and secured to the base frame.

Superposed upon the box spring structure described is a mattress structure designated as a whole by the numeral 32. The mattress 32 is composed of molded and vulcanized rubber latex foam which is inherently resilient. The underside of the mattress is shaped complementary to the top of the box spring structure, that is, it is formed with a central recess 33 in which the central region of the box spring is received. The arrangement is such that the central region of the mattress, over the upholstery 28, is somewhat thinner than the marginal portion of the mattress over the upholstery 28 and recess or space 30, said marginal portion of the mattress having substantially the thickness of conventional mattresses. To provide added resilience, the mattress 32 is formed with a multiplicity of recesses or voids 34, 34 extending upwardly from its bottom face, the recesses in its central region extending nearer to its top face than the recesses in its marginal region, the arrangement being such that there is slightly less resilience in said marginal region so that sagging thereof is obviated. The mattress is completely covered with the usual mattress ticking 35, with the usual taped edges. The sides of the mattress may flare outwardly somewhat, toward the top thereof, in continuation of the similar flare of the underlying marginal spring structure. The arrangement is such that the top margin of the mattress will overlie the side rails of a bed, indicated at 36, 36, Fig. 1, with the result that a bed-spread on the mattress will drape smoothly over the said side rails.

If desired, the box spring and mattress may be joined so as to constitute an integral structure, in which case the spring and mattress structures are united to each other, preferably by adhesion, solely in the central region of each. In any event, the marginal portion of the mattress is free of the underlying spring structure, and may be lifted therefrom at least to the extent indicated by broken lines in Fig. 1, to give access to the spaces 30 into which the marginal portions of bed-clothes may be tucked.

From the foregoing it will be apparent that the invention provides a combination structure whereof the mattress is "tailored" to the box spring, and the construction of the latter is modified to enable a substantial saving of material in the mattress structure without sacrifice of any desirable features. The structure has somewhat greater resistance to deflection in its marginal regions than in its central region so that a sleeping person is less likely to roll off the bed. The invention effects a saving in cost, and achieves the other advantages set out in the foregoing statement of objects.

The embodiment of the invention shown in Figs. 3 and 4 is essentially similar to the embodiment previously described, but differs therefrom in several features as will be pointed out. The invention comprises a base frame 40 that includes upstanding marginal rails 41, 41 on the opposite lateral margins thereof, and transversely extending slats 42. Mounted upon the frame 40 is a marginal series of helical double-cone wire springs 43, 43, and a centrally disposed group of coiled wire springs 44 arranged in ranks and files in alignment with the springs 43. The springs 43 contain more coils than do the springs 44. The upper coils of springs 44 are secured to a border wire 45, and the upper coils of springs 43 are secured to two border wires 46, 47, exactly as in the previously described embodiment, all springs being twine tied as previously described. A burlap cover 48 covers the central group of springs 44 and holds them under determinate stress. In like manner, a burlap cover 49 ties down the marginal series of springs 43, but to greater extent than the springs 44. The arrangement is such that the tops of the central group of springs 44 are substantially higher than the tops of springs 43, and the latter are less yielding. The two groups of springs are connected to each other locally and securely held in properly spaced relation by clips 50, 50 that are of general U-shape having one leg thereof longer than the other, the long leg of each clip being secured to the border wire 45 and the shorter leg being secured to the border wire 46.

Mounted atop the marginal springs 43 is upholstery or filling 52 preferably consisting of cotton felt, the same being covered by ticking 53. The outer marginal portion of the latter may extend downwardly over the sides of the marginal spring structure and be secured to the side rails 41. The inner marginal portion of the ticking 53 is looped or festooned into the space between the marginal series of springs and the central group of springs, its edge portions attached to the burlap cover 48 atop the central group of springs. The arrangement is such as to provide a pocket 54, above the clips 50, in which pocket bed clothing is receivable. Upholstery or filling 55 is positioned atop the central group of springs 44, and covered with ticking 56 that is secured adjacent its margins to the ticking 53, as clearly shown in Fig. 5, the marginal portions of the ticking overlying the pocket 54.

Mounted upon the spring structure described is a mattress 58 that is substantially identical with the mattress 32 of the previously described embodiment, the only difference being the absence of outward flare of the lateral faces of the mattress. The mattress 58 is covered with ticking 59 and the latter is adhered to the ticking 56, especially the portions of the latter that overlie the pocket 54.

The ticking 59 is not adhered to the ticking 53 that covers the upholstery 52, so that the marginal portions of the mattress may be lifted, as indicated in broken lines in Fig. 3, to give access to the pocket 54 whereby the edge portions of bed clothes may be tucked therinto. The side rails of a bed in which the combination structure is mounted are shown at 60, 60.

Other modification may be resorted to without departing from the spirit of the invention or the scope thereof as defined by the appended claims.

What is claimed is:

1. A combination box spring and mattress comprising a spring structure having a series of mar-

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ginal spring elements, a group of central spring elements arranged in spaced relation to and being independent and separate from said marginal spring elements, and a mattress structure positioned upon said spring structure and attached thereto solely in the region of the central spring elements, the marginal portion of the mattress being free to enable the same to be lifted to give access to the space between the two groups of spring elements.

2. A combination as defined in claim 1 whereof the series of marginal spring elements are of lower height and are less yielding than the group of central spring members, and the marginal region of the mattress structure is of greater thickness than the central region thereof to compensate for the reduced height of the adjacent marginal spring elements.

3. A combination as defined in claim 1 whereof the central group of spring elements is of greater height so as to extend above the series of marginal spring elements, and the under side of the mattress structure is formed with a recess in which the upper part of the central group of spring elements is received.

4. A combination box spring and mattress comprising a spring structure, a mattress structure of molded resilient material mounted there-

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on with at least the edge portion of said mattress free of attachment to said springs, and means on the confronting faces of the central portions of said structures preventing shifting movement of one of them relatively of the other.

5. A combination as defined in claim 4 whereof the sides of the combination structure flare outwardly toward the top thereof whereby the top of the structure substantially overhangs the bottom thereof.

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