Nov. 4, 1952 L. WEINER 2,616,100

SUPPLEMENTARY SUPPORT FOR MATTRESSES

Filed May 8, 1947 2 SHEETS—SHEET 1

Fig. 1.

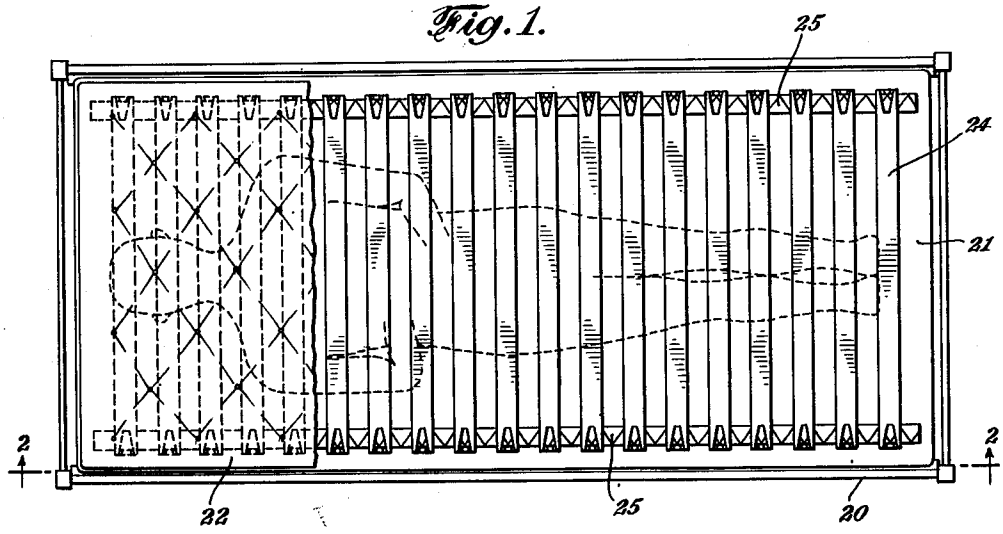


Fig. 2.

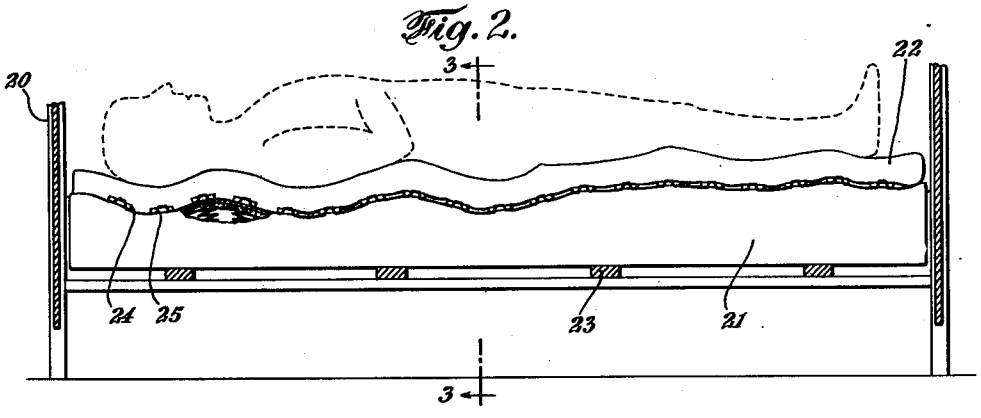


Fig. 3.

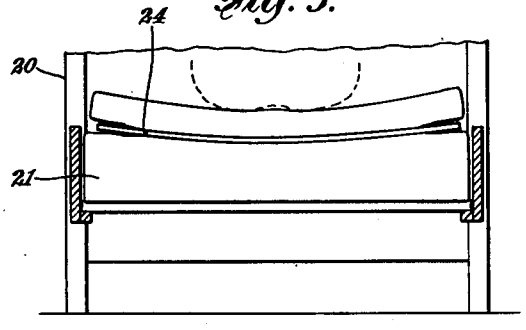


Fig. 4.

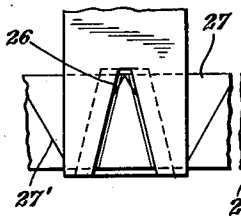


Fig. 4a.

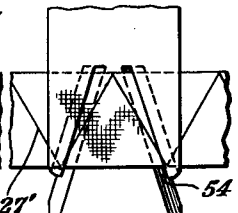


Fig. 5.



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Fig. 6.

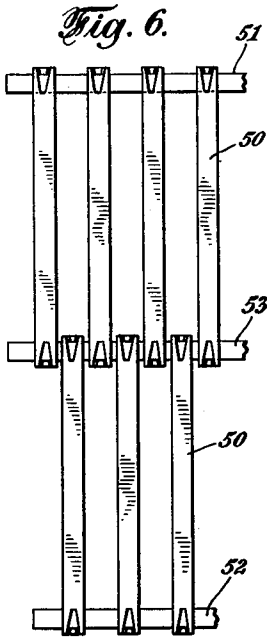


Fig. 7.

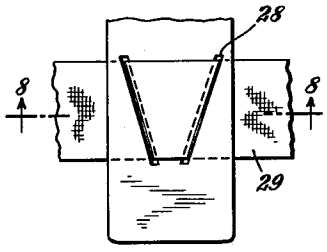


Fig. 8.



Fig. 9.

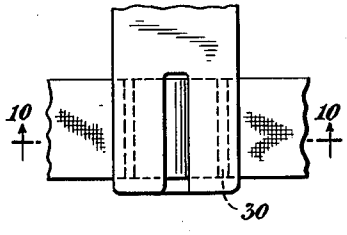


Fig. 10.

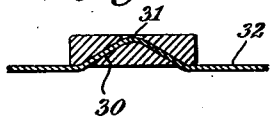


Fig. 11.

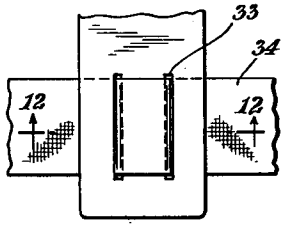


Fig. 12.

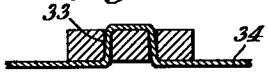


Fig. 13.

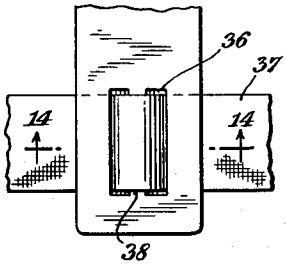


Fig. 14.

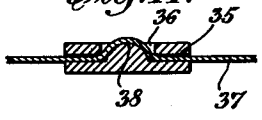


Fig. 15.

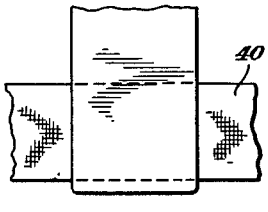


Fig. 16.

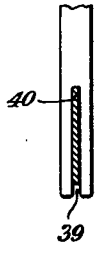


Fig. 17.

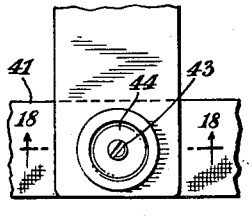
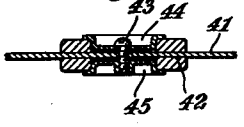


Fig. 18.



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SUPPLEMENTARY SUPPORT FOR MATTRESSES

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Application May 8, 1947, Serial No. 746,787

2 Claims. (Cl. 5—236)

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This invention relates to supplementary supports for use between bed spring and mattress, to avoid undue sagging under heavier parts of the body.

So-called "bed boards" are already in use between bed spring and mattress, to distribute the load on the bed spring and maintain the mattress in flat condition. While such relatively stiff and unyielding bed boards are effective, they leave much to be desired for the comfort of the sleeper, and particularly in cases of abnormal spinal conditions.

My present invention provides a new and improved type of supplementary support by which the flexing of the mattress under different parts of the body is resiliently opposed transversely of the bed but not longitudinally.

An important object of the invention is to provide a supplementary support which is freely flexible in a longitudinal direction but is transversely resilient, so as to gently distribute the weight of the body transversely of the bed spring. The general effect of this operation is to somewhat reduce the amplitude or depth of the mattress depressions under different parts of the body, while extending such depressions in a transverse direction, so that the sleeper rests in a more natural position and may roll or turn from side to side with considerably less effort.

The invention will be clearly understood from a few examples shown in the accompanying drawing. In said drawing—

Figure 1 is a plan view, with parts broken away, showing a single-width bed with the supplementary support disposed without tension between a conventional box spring and mattress.

Figure 2 is a longitudinal, sectional elevation of the same, on the line 2—2 of Figure 1.

Figure 3 is a transverse, sectional elevation of the same on the line 3—3 of Figure 2.

Figures 4 and 4a are detail plan views of a connecting strap passing through two forms of open-ended slots in the end portions of the resilient strips.

Figure 5 is an end elevation of the construction illustrated in Figure 4.

Figure 6 is a fragmentary plan view showing the use of separate outer straps and a common inner strap to join the strips in two adjacent series.

Figure 7 is a plan view and Figure 8 a transverse section on the line 8—8 of Figure 7 showing the use of internal, longitudinally-convergent vertical slots through which the connecting straps are threaded transversely of the strip in zigzag manner.

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Figure 9 is a plan view and Figure 10 a transverse, sectional elevation on the line 10—10 of Figure 9 showing the use of open-ended, side-by-side, longitudinal slots inclined laterally toward each other with the connecting strap passing through them in zigzag manner.

Figure 11 is a plan view and Figure 12 a transverse, sectional elevation on the line 12—12 of Figure 11 showing the use of a pair of internal, parallel, vertical, longitudinal slots with the connecting strap passing through them in zigzag manner.

Figure 13 is a plan view and Figure 14 a transverse, sectional elevation on the line 14—14 of Figure 13 showing the use of a pair of internal, horizontal slots entering the two narrower edges of the strip on the same plane and communicating in the upper surface of the strip over a strap-deflecting beading.

Figure 15 is a plan view and Figure 16 an edge elevation showing the use of a single, open-ended horizontal slot extending straight through the end portion of the strip, from one of its edges to the other, with a connecting strap therein, and

Figure 17 is a plan view and Figure 18 a transverse, vertical section on the line 18—18 of Figure 17 illustrating the use of countersunk washers or grommets for fixing the connecting strap in the horizontally-slotted end portion of the strip.

By reference to Figures 1, 2 and 3, the method of employing the supplementary support will be apparent. In these figures, the bed frame is generally indicated at 20, the box spring at 21, and the mattress at 22. The box spring is shown as resting on the slats 23. The supplementary support is shown between the bed spring 21 and mattress 22. The supplementary support comprises a system of resilient strips 24 disposed in generally parallel relation to each other and connected together by flexible straps 25 to provide a unitary structure which is transversely resilient but longitudinally flexible with no tension. The resilient strips 24 are advantageously made of wood of essentially rectangular section, and may be graduated in thickness to provide the proper degree of resilience. The strength or stiffness may vary between the different strips according to the weight to be supported. The connecting straps 25 are preferably of strong though flexible textile fabric, such as for example upholstery webbing. The connection of the strips 24 by the straps 25 may be effected in any suitable manner, but is preferably made adjustable by threading the straps through slots in

the end portions of the strips. This may be effected in many ways. Several forms will be hereinafter shown by way of example. It is to be understood that the relation of the box spring to the supplementary support is preferably such that each of the resilient strips will be supported more or less uniformly throughout its length.

Figure 2 in particular represents the typical curvature of the human back with the corresponding depression of the mattress under the weight of different portions of the body, which the supplementary support is intended to assure.

The resilient strips are arranged in substantially parallel relation to each other and preferably somewhat spaced apart. The distance of spacing will materially affect the firmness of support, and for this reason it is preferred to have this spacing adjustable. This spacing may vary at different parts of the device.

In Figures 4 and 5, the end portion of the resilient strip is provided with a pair of open-ended longitudinal slots **26** which are inclined toward each other laterally and converge inwardly from the end of the strip. The connecting strap **27** is threaded in zigzag manner through the pair of slots **26** and successively from one strip to the next. The slots here shown being open-ended, permit a loop of the strap **27** to be introduced into or removed from the slots in each strip without disturbing its position in the slots of the other strips. For adjusting the spacing of each strip from the adjacent strips, the connecting strap may readily be loosened or removed to permit shifting the strip to a proper position of adjustment and then tightened to maintain the strip in such position.

In Figures 7 and 8, the end portion of the strip is provided with a pair of internal, side-by-side vertical slots **28** which extend longitudinally of the strip from its under surface to its upper surface and which converge toward the outer end. The connecting strap **29**, in this example, has to be threaded in zigzag manner through the consecutive slots **28** in the successive strips, because the slots are not open-ended as in the example shown in Figures 4 and 5.

Another form of open-ended slot construction is illustrated in Figures 9 and 10. Here the strip is provided with a pair of open-ended slots **30** which extend parallel to the axis of the strip but are inclined toward each other laterally and come together in an opening **31** in the top surface. A loop of the connecting strap **32** is transversely inserted into the slot **30** at the open ends thereof, and while the strap is still loose, the strip is adjusted for spacing and the strap then tightened so that the strip will remain in properly adjusted relation to an adjoining strip. The strap **32** remains below the top surface of the strip in the opening **31**.

Figures 11 and 12 represent a modification of the construction shown in Figures 7 and 8. Here the internal vertical slots **33** extend parallel to the main axis of the strip. In other respects, the positioning of the connecting strap **34** and the adjustment of the strip are the same as described with reference to Figures 7 and 8.

In Figures 13 and 14, the end portions of the strip are provided with two horizontally-disposed internal slots **35** which enter the strip in its narrower edges and lead to a pair of upper surface recesses **36** through which the connecting strap **37** passes on its way from one slot to the other. In its passage from one slot to the other, the strap **37** is deflected out of its horizontal plane by passing over a beading **38**. This deflection of the strap prevents accidental displacement of the strip with respect to adjacent strips after the strap is tightened. By loosening the strap, the adjustment of the strip is easily accomplished.

The employment of a simple horizontal open-ended slot is illustrated in Figures 15 and 16. Here the horizontal slot **39** extends across the end portion of the strip from one of its narrow edges to the other and receives the connecting strap **40**. In this particular construction, it is particularly important that the fit be snug, to avoid accidental displacement.

To positively avoid accidental displacement of the strip and strap in a simple open-ended horizontal slot construction, a locking device such as shown in Figures 17 and 18 may be employed. Thus the connecting strap **41** passing through the horizontal slot **42** is pierced by a binding screw **43** which passes through the grommets **44** and **45** countersunk into the upper and lower faces of the strip. To adjust the strips, the screw **43** is removed and reinserted through the strap **41** in the new position.

The supplementary support structure, according to my invention, is adaptable to various dimensions and proportions, either for single bed or for double bed. Preferably where a double-width structure is involved, I employ two laterally adjacent systems of resilient strips, joined together, as shown in Figure 6, so that each system of strips acts to a considerable extent independently of the other, but yet is connected thereto. Here the resilient strips **50** are arranged in two parallel systems with individual outer straps **51**, **52** and a common inner strap **53**. These outer and inner straps may be connected in any suitable manner to the respective ends of the resilient strips, which latter overlap each other at their inner ends, those of one system alternating with those of the other. The slotted end portions may, for example, employ the form of open-ended slots illustrated in Figures 4 and 5, or they may have inwardly convergent open-ended slots **54** which open into the narrow edges of the strip and are inclined transversely toward each other, as clearly shown in Figure 4[a]. This latter construction is particularly desirable for the inner ends of the strips so as to enhance the resistance to the separation of the two systems and at the same time increase the supporting area along the junction line of the two systems.

The strap shown in Figures 4 and 4[a] illustrates the use of orientation lines or marks **27'** to assist in judging the spacing between strips.

I claim:

1. A transversely resilient, supplementary support for use with a bedspring and a mattress comprising a system of resilient strips disposed in generally parallel relation to each other, each of said strips having in each of its end portions a convergent pair of open-ended side-by-side slots extending longitudinally of the strip from its under surface to its upper surface, and flexible straps extending in zigzag manner through the consecutive slots of the respective end portions of said strips to secure them together.

2. A transversely resilient, supplementary support comprising a system of resilient strips disposed in generally parallel relation to each other, each of said strips having in each of its end portions a convergent pair of open-ended, side-by-side slots extending longitudinally of the strip from its under surface to its upper surface, and flexible straps extending in zigzag manner

through the consecutive slots of the respective end portions of said strips to secure them together.

LEE WEINER.

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