May 6, 1958 L. E. FREY 2,832,966

BED SPRING

Filed April 9, 1956

FIG. 1.

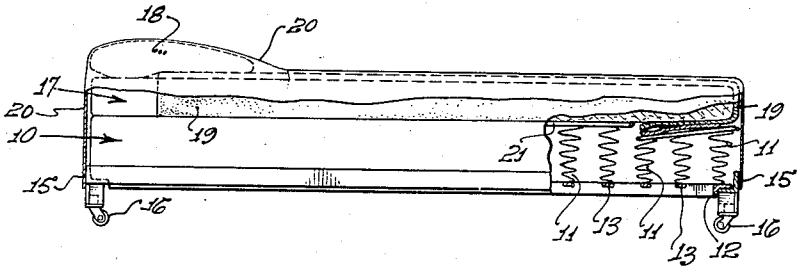


FIG. 2.

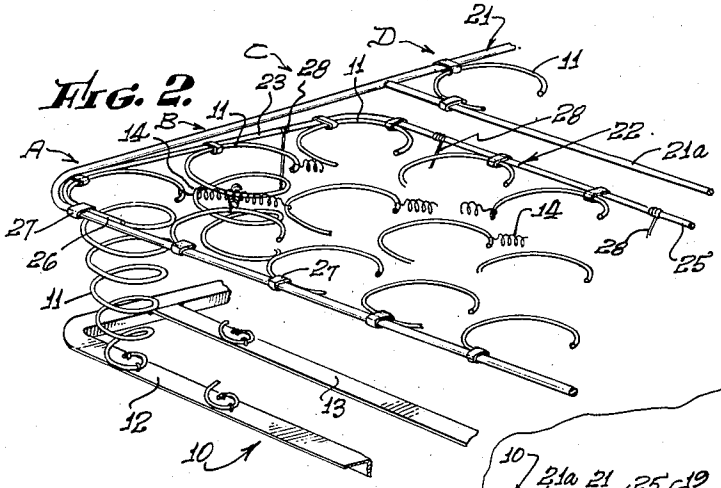


FIG. 4.

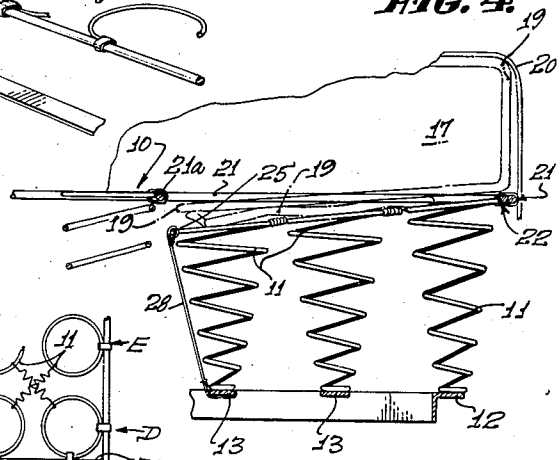
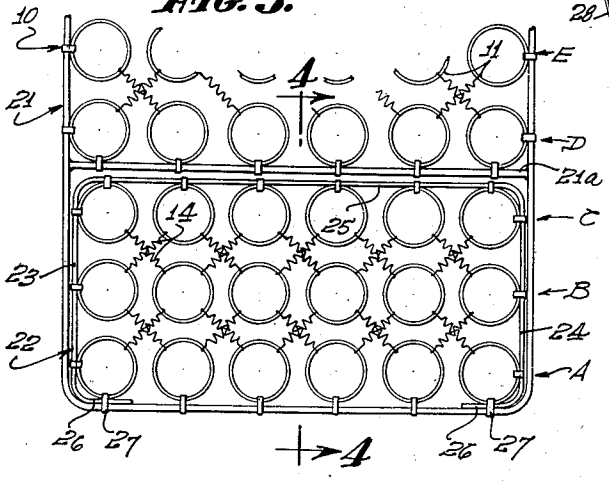


FIG. 3.



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BED SPRING

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6 Claims. (Cl. 5—248)

This invention relates to a bed structure.

At the present time, a bed customarily includes a coil or box spring with a mattress loosely disposed above it. The bed covers, including sheets, blankets, bedspreads, etc., extend across the top of the mattress with their lower ends being tucked between the mattress and spring at the foot of the bed.

The end portions of these articles of bed covering when tucked between the mattress and spring cause a lumpiness at the foot of the bed which makes it impossible to achieve a neat and tailored appearance.

It is an object of my invention to provide a new and improved bed structure which automatically eliminates any lumpiness or unsightly appearance which results from tucking in the covers in the normal manner. This lumpiness usually occurs particularly at the corners of the bed where the sides and ends of the bed coverings overlap. This results in several thicknesses of bed coverings, which displace the mattress upwardly from the spring.

In essence, my invention contemplates a bed structure having means to receive and accommodate the ends of the bed coverings between the mattress and spring without affecting the positioning of the mattress and without adversely affecting the appearance and comfort of the bed. In the preferred embodiment of my invention, such means comprises forming the portion of the spring adjacent the foot of the bed in such a manner that space is provided to accommodate the ends of the bed coverings without their becoming bunched up and deforming the top surface of the bed.

It is accordingly an object of my invention to provide a novel bed or spring construction having all of the advantages and benefits of the construction set forth above. It is a further object of my invention to provide such a bed structure which is substantially as economical to manufacture as a conventional bed structure and which is far more satisfactory in performance.

While my bed structure is capable of universal use, it is believed to be particularly useful in hotels, where maids are careless in making beds, and in studio couches and sofa beds, which become unsightly and uncomfortable for daytime use due to the bed covering ends which are disposed between the spring and mattress.

My invention also comprises such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by my invention.

While I have shown in the accompanying drawings a preferred embodiment of my invention, it should be understood that the same is susceptible of modification and change without departing from the spirit of my invention.

Referring to the drawings,

Fig. 1 is a side elevational view of a bed, with the foot portion broken away to show my bed spring construction in use;

Fig. 2 is an enlarged perspective view of one corner of the foot portion of the spring;

Fig. 3 is a top plan view of the foot portion of the spring;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3, with the bed coverings shown in dotted lines.

A preferred embodiment which has been selected to illustrate my invention comprises a coil spring unit **10** without cover, the major portion of which is constructed in a substantially conventional manner. The spring **10** is substantially rectangular in shape and includes a plurality of inverted helical coils **11** which extend in rows across the spring **10**. The lower ends of the coils **11** are attached to a base which includes a substantially rectangular base frame **12** and a plurality of transverse supporting members **13**. The upper ends of the coils **11** are attached to each other by a plurality of diagonally extending coil springs **14** or other equivalent tying members.

The spring **10** is customarily mounted on a bed frame **15** having a roller **16** beneath each corner thereof. A mattress **17** is disposed above the spring **10**, with a pillow **18** and a plurality of bed coverings **19** including sheets and blankets disposed above the mattress. A bedspread **20** extends over the bed coverings **19** and pillow **18**.

The spring **10** is provided with a conventional substantially rectangular top frame **21** which extends around the edge of the spring. The novel features of this embodiment of my invention lie in the construction of the portion of the spring **10** adjacent the foot of the bed.

Adjacent the foot portion of the spring **10** I provide a sub-frame **22**, which is substantially rectangular in shape. The sub-frame **22** comprises a pair of parallel sides **23** and **24**, a cross piece **25** and a pair of pivot portions **26**. The pivot portions **26** extend parallel and directly adjacent to the end of the frame **21** which extends along the foot of the bed. A pair of clamps **27** extend around the pivot portions **26** and the end of the frame **21** to pivotally attach the sub-frame **22** to the frame **21**.

The sides **23** and **24** of the sub-frame **22** extend directly adjacent and parallel to the sides of the frame **21** adjacent the foot of the bed. The cross piece **25** extends transversely across the box spring **10**. The sub-frame **22** as described may easily be formed from a single piece of steel wire or other suitable material.

The frame **21** is provided with an additional cross bar **21***a* which is not found in a conventional spring and which is attached at its opposite ends to the sides of the frame **21**. The cross bar **21***a* extends parallel to the ends of the frame **21** and also extends adjacent and parallel to the cross piece **25** of the sub-frame **22**.

A plurality of tie cords **28** are attached at their upper ends to the sub-frame **22** and at their lower ends to the base **12** or supporting members **13**. The tie cords **28** hold the sub-frame **22** in a slightly depressed position against the pressure of the coils **11**, so that the cross piece **25** of the sub-frame **22** is normally depressed beneath the cross bar **21***a*.

It will be noted that the coils **11** which are enclosed within the sub-frame **22** are attached thereto, while the coils enclosed within the remainder of the frame **21** are attached to it and to the cross bar **21***a*. In this regard, the rows of coils **11** have been designated alphabetically. It will be noted that one side of row A is attached to the foot portion of the frame **21**, while the opposite side of row A is connected to row B. The end coils of rows B and C are connected to the sides **23** and **24** of the sub-frame **22**. The other side of the coils of row B is connected to row C, while the opposite side of row C is connected to the cross piece **25** of the sub-frame **22**. The coils of row D are connected on one side to the cross piece **21***a* and on the other side to the coils of row E. The remainder of the coils are attached to the frame **21** and to each other in the conventional manner.

In use, since the cross piece **25** is normally held in a depressed position with respect to the frame **21**, a recess

is provided in the box spring inwardly from the foot thereof, which recess becomes gradually deeper from the foot of the bed toward the cross piece **25**. This recess is adapted to receive and accommodate the ends of the bed coverings, including the portions which are tucked in from the foot of the bed and overlapping portions which are tucked in from both sides of the bed adjacent to the foot. All of these coverings can be accommodated without causing the foot portion of the mattress **17** to be disturbed from its position.

It will be noted that the top line of the spring is unaffected, since the frame **21** is constructed in the same manner as in a conventional spring. When the bed is viewed from the side, the appearance is thus identical with that of a conventional bed and the recess for receiving the bed coverings is not visible.

I claim:

1. A bed spring having a substantially rectangular upper frame extending around the upper portion thereof, a plurality of coils mounted within said frame and arranged in a plurality of rows extending across said frame, a rigid cross bar extending across said frame adjacent one end thereof, at least some of the coils in the row adjacent to said cross bar being attached thereto, a substantially rectangular sub-frame having side portions extending adjacent the sides of said frame and a cross piece extending parallel and adjacent to said cross bar, said sub-frame being attached to the end of said frame adjacent said cross bar, said sub-frame enclosing a plurality of rows of coils, the coils within said sub-frame being attached to said sub-frame and to each other, and tie means maintaining the inner end of said sub-frame disposed substantially beneath said frame to provide a sloping recess extending from the foot of the bed spring to the inner end of said sub-frame, said recess being adapted to receive and accommodate the ends of bed coverings.

2. A bed spring having a substantially rectangular upper frame extending around the upper portion thereof, a plurality of coils mounted within said frame and arranged in a plurality of rows extending across said frame, a rigid cross bar extending across said frame adjacent one end thereof, at least some of the coils in the row adjacent to said cross bar being attached thereto, a sub-frame attached to the end of said frame adjacent said cross bar, said sub-frame enclosing a plurality of rows of coils, the coils within said sub-frame being attached to said sub-frame and to each other, means maintaining the inner end of said sub-frame disposed substantially beneath said frame to provide a sloping recess extending from the foot of the bed spring to the inner end of said sub-frame, said recess being adapted to receive and accommodate the ends of bed coverings.

3. In a bed spring having a frame, a sub-frame disposed within the periphery of said frame and connected to one end thereof, a plurality of coils attached to said sub-frame, means maintaining the portion of said sub-frame disposed inwardly from the end of said frame disposed substantially beneath said frame to provide a recess extending from the foot of the bed spring to the inner end of said sub-frame, said recess being adapted to receive and accommodate the ends of bed coverings.

4. A bed spring having a plurality of resilient members, said spring adapted to be used with a mattress and a plurality of bed coverings, said spring having a horizontal upper surface, said mattress adapted to rest upon the upper surface of said spring, said bed coverings adapted to extend across the upper surface of said mattress, the lower ends of said coverings being adapted to extend between the upper surface of said spring and the lower surface of said mattress adjacent the foot portion thereof, and tie means depressing a plurality of resilient members adjacent the foot portion of said spring downwardly to provide a shallow recess depressed beneath the horizontal upper surface of said spring and sloping from the foot of said spring toward the head thereof for receiving the lower ends of said coverings, said ends being stored within said recess and extending substantially parallel to the upper surface of said spring, so that the lower surface of said mattress is not substantially displaced vertically upwardly from the upper surface of said spring.

5. A bed spring having a plurality of resilient members, said spring adapted to be used with a mattress and a plurality of bed coverings, said spring having a horizontal upper surface, said mattress having horizontal upper and lower surfaces, the lower surface of said mattress adapted to rest upon the upper surface of said spring, said coverings adapted to extend across the upper surface of said mattress, the lower ends of said coverings adapted to extend between said mattress and spring adjacent the foot portion thereof, means depressing at least one resilient member adjacent the foot portion of said spring to form a recess depressed beneath the upper surface of said spring and adapted to receive the lower ends of said coverings, said ends adapted to be stored within said recess, so that the lower surface of said mattress is not displaced substantially from the upper surface of said spring.

6. A bed spring adapted to be used with a mattress and bed coverings, said spring having a horizontal upper surface, said mattress adapted to rest upon said upper surface, said coverings adapted to extend across said mattress, the lower ends of said coverings adapted to extend between said mattress and spring adjacent the foot portion thereof, means depressing the foot portion of said spring downwardly to provide a shallow recess slightly depressed beneath the horizontal upper surface of said spring, said recess being adapted to receive the lower ends of said coverings, said ends adapted to be stored within said recess and adapted to extend substantially parallel to the upper surface of said spring, so that said mattress is not substantially displaced vertically upwardly from the upper surface of said spring.

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