Dec. 10, 1968 F. A. CIAMPA ETAL 3,414,915

BOTTOM CONSTRUCTION FOR BOX SPRINGS

Filed April 24, 1967

Fig. 1.

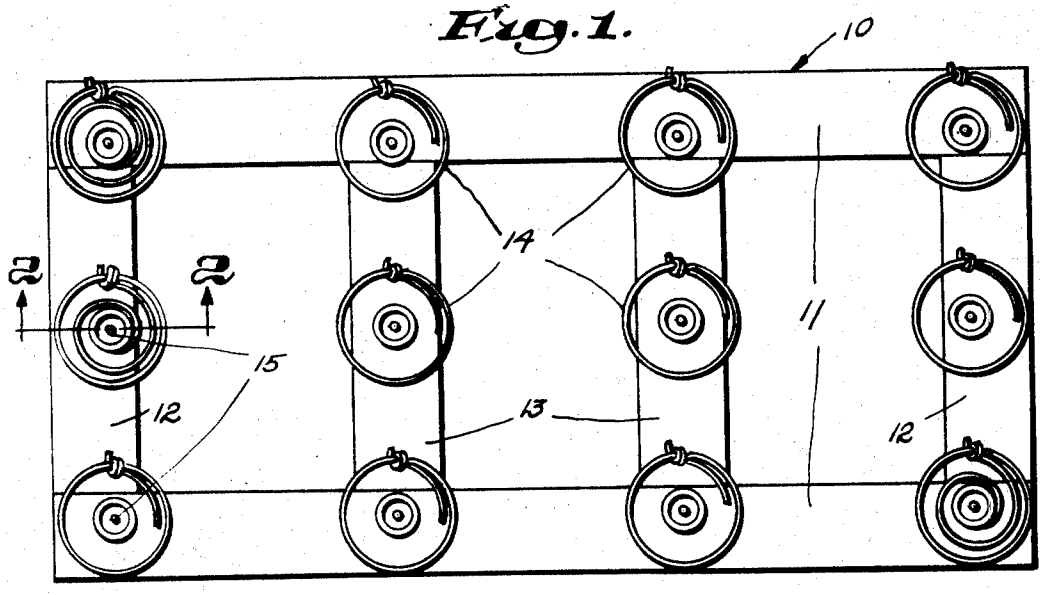


Fig. 5.

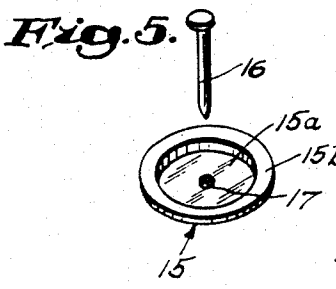


Fig. 2.

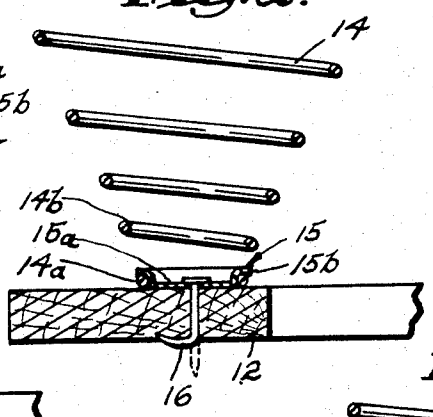


Fig. 6.

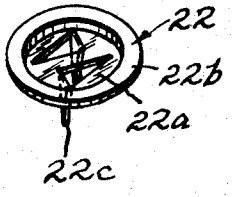


Fig. 3.

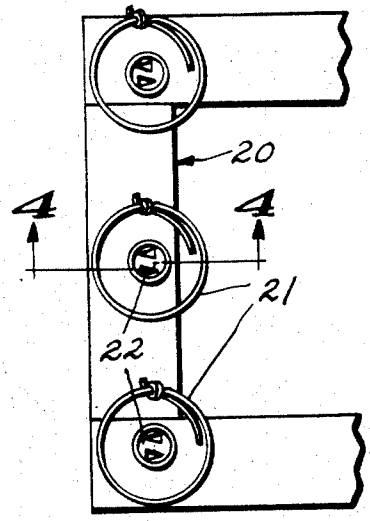
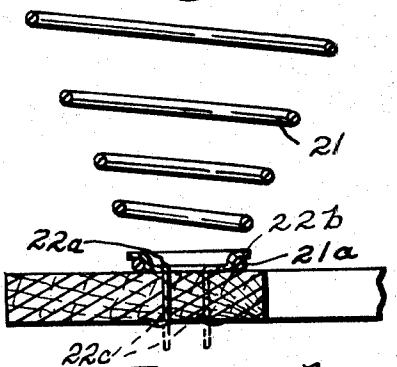


Fig. 4.



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BOTTOM CONSTRUCTION FOR BOX SPRINGS

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4 Claims. (Cl. 5—351)

ABSTRACT OF THE DISCLOSURE

A fastener for securing individual coils to the bottom frame of a box spring. The fastener is a cup-like disk which fits inside the bottom turn of a coil and has a flange overlying the bottom turn. The disk is nailed to the frame, or has prongs struck out of the middle and driven into the frame.

Background of the invention

According to the usual method of constructing box springs, rows of bottom wires running lengthwise and crosswise are used. These wires are appropriately crimped near their intersections so that, by twisting a coil, the bottom turn can be interwoven with the wires at four points around an intersection. The coils are attached individually by hand. The bottom wires are, subsequently, stapled to a wooden frame.

This type of construction involves a considerable amount of hand labor. Furthermore, when the spring is in use, shifting of the coils often causes objectionable squeaking.

Summary

The principal object of this invention is to provide a bottom construction which eliminates swaying and noise, which considerably reduces the labor and material required, and which is readily adaptable to production by automatic machinery.

The bottom construction here disclosed employs a rigid disk for fastening the bottom turn of a coil to the bottom frame. The disk has a recessed body portion, which fits snugly inside the bottom turn, and a flange which overlies the bottom turn. The disk is fastened to the frame by a separate nail or by prongs struck out of the body portion.

Other objects, advantages, and novel features of the invention will be apparent from the following description.

Brief description of the drawing

In the drawings illustrating the invention:

FIG. 1 is a plan view of a box spring with its bottom constructed according to the invention;

FIG. 2 is an enlarged fragmentary, cross-section taken along line **2—2** of FIG. 1;

FIG. 3 is a fragmentary plan view of a box spring using a modified form of bottom fastener;

FIG. 4 is an enlarged fragmentary cross-section taken along line **4—4** of FIG. 3;

FIG. 5 is an exploded view of a two-piece form of coil fastener; and

FIG. 6 is a perspective view of a one piece form of fastener.

Description of the preferred embodiments

The box spring shown in FIG. 1 has a wooden bottom frame generally indicated by the numeral **10**, consisting of border pieces **11** and **12** and cross pieces **13**. A number of tapered coils **14** are mounted on the frame. It is understood that the box spring may be made in any size, ranging from that of a chair seat to that of a full bed, and that any desired number of coils may be used.

The two piece fastener shown in FIG. 6 consists of a disk **15** and a nail or tack **16**. The disk has a depressed body portion **15***a*, with a hole **17** in the center, and a flange portion **15***b*. The disk may be made of metal or a tough rigid plastic.

The body portion **15***a* of the disk is of a diameter to fit snugly in the bottom turn **14***a* of the coil, and flange **15***b* overlies the bottom turn. The flange is of small enough diameter to pass through the next to bottom turn **14***b*. The disk is attached to the frame piece **12** by driving the nail **16** through the frame and clinching it on the under side.

The spring shown in FIG. 3 has a frame **20** to which coils **21** are attached by a one piece fastener **22**. This fastener is also a disk having a recessed body portion **22***a* having a flange **22***b*. Prongs **22***c* are struck out of the body portion. The coil is fastened to the frame by driving the prongs through the frame piece and clinching them on the under side. It is understood that the diameter of the disk body portion, and, consequently, of the bottom turn of the coil, is larger than the thickness of the frame, so that the prongs are long enough to pass through the frame and be clinched on the under side. The body portion **22***a* fits snugly inside the bottom. Turn **21***a* and the flange overlies the bottom turn.

The disk fastener in both cases is of a depth slightly less than the thickness of the wire from which the coils are made, so that a very tight fit is obtained. The fastener can be applied by hand, using a bar and hammer, and is easier to apply than staples. This type of fastener, however, is especially suited for application by automatic machinery such as the machine described in our co-pending application Ser. No. 735,373, filed June 7, 1968.

It is understood that the top construction of the spring may be completed in any customary manner, such as wire tying, either before or after the coils are fastened to the frame. This bottom construction may also be used with the prefabricated mat type of top construction shown in our Patent No. 3,270,354.

The bottom fastener here disclosed positively locks the entire bottom turn of a coil, so that it cannot rock or slip in any direction. Noise due to shifting of the coils is entirely eliminated. The fastener cannot pull loose, as the staples holding the bottom wires frequently do. The elmination of the bottom wires effects a substantial saving in material. The hand labor required, even if the fasteners are applied by hand, is substantially reduced.

What is claimed is:

1. In a box spring having a rigid bottom frame and a number of spring coils mounted on said frame: the combination comprising a coil having a bottom turn of smaller diameter than its overlying turns, and a disk having a recessed circular body portion fitting snugly within and engaging the entire bottom turn of said coil and a flange overlying said bottom turn, said flange being of such diameter as to pass through the overlying turns of the coil and means for securing said disk to said frame, thereby locking said bottom turn to said frame.

2. The combination described in claim **1**, said disk having a central opening, and the means for securing said disk comprising a nail passing through said disk and said frame and clinched under said frame.

3. The combination described in claim **1**, said means for securing said disk comprising a prong struck out of said body portion and passing through and clinched under said frame.

4. The combination described in claim **1**, said disk

body portion being of a depth slightly less than the diameter of the wire in said bottom turn.

References Cited

UNITED STATES PATENTS

2,265,532	12/1941	Levine	5—263 X
2,334,406	11/1943	Gray	85—29
2,623,431	12/1952	Scheurmann	85—16 X
2,698,444	1/1955	Piliero	5—263

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