June 9, 1959 W. W. GLEASON 2,889,562

SPRING UNIT FOR CRIBS AND THE LIKE

Filed June 23, 1955

FIG. 1

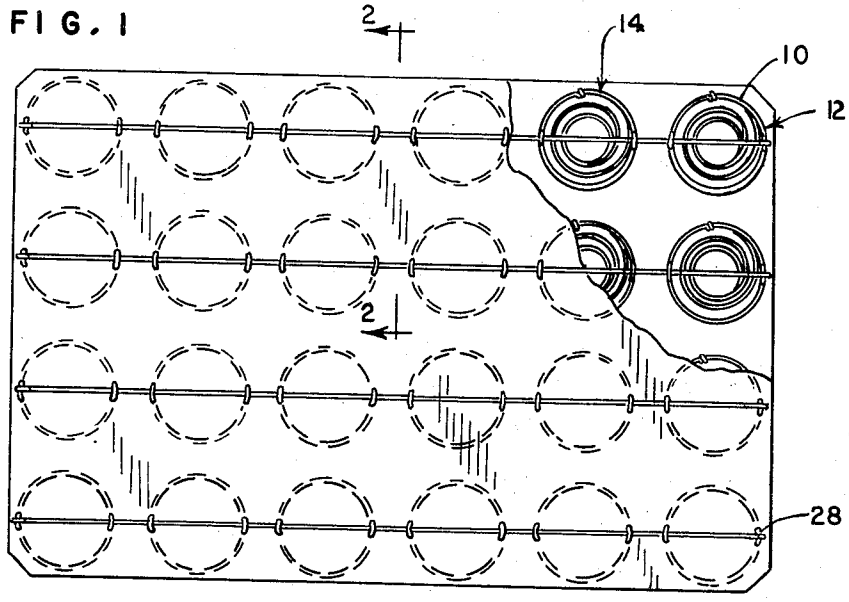


FIG. 2

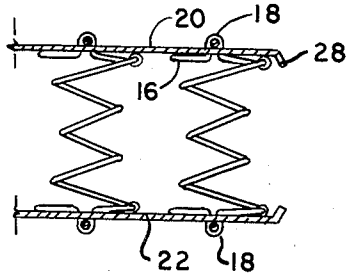


FIG. 3

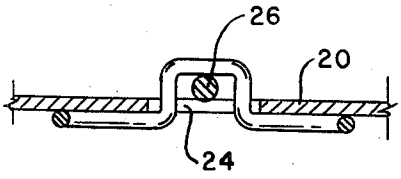


FIG. 4

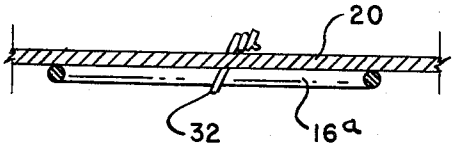
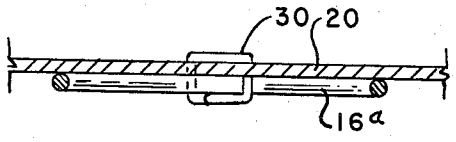


FIG. 5



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United States Patent Office 2,889,562 Patented June 9, 1959

2,889,562

SPRING UNIT FOR CRIBS AND THE LIKE

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Application June 23, 1955, Serial No. 517,537

3 Claims. (Cl. 5—248)

This invention relates to a spring assembly and more particularly to the manufacture of a low cost spring unit for use in cribs and the like beds of small crosswise and lengthwise dimension.

It is an object of this invention to produce and to provide a method for producing a low cost spring assembly formed of a plurality of spring coils aligned in crosswise and lengthwise rows for use as a bed spring in cribs, other beds or upholstered units of relatively small crosswise and lengthwise dimension.

Another object is to produce a spring assembly of the type described having a plurality of coil springs interconnected in a plurality of lengthwise and crosswise rows between walls which provide relatively flat surfaces which support the desired bedding and the like on the top side thereof.

These and other objects and advantages of this invention will hereinafter appear and for purposes of illustration, but not of limitation, embodiments of the invention are shown in the accompanying drawing in which:

Figure 1 is a top plan view of a spring assembly embodying the features of this invention with a portion broken away to illustrate the position of parts in the interior thereof;

Figure 2 is a sectional elevational view taken along the line 2—2 of Figure 1;

Figure 3 is an enlarged sectional elevational view of a portion of the spring assembly shown in Figures 1 and 2;

Figure 4 is an enlarged sectional elevational view illustrating a modification in the assembly of the spring unit, and

Figure 5 is a sectional elevational view similar to those of Figures 3 and 4 showing a further modification in the assembly.

In the past, spring assemblies for cribs and the like have been constructed in similar fashion to other larger units wherein a plurality of coil springs are arranged in spaced apart relation in lengthwise and crosswise rows between upper and lower border frame members of rigid wires or bands of substantial dimension. The border frame members and the coil springs are interconnected one with the other by the use of helical tie wires which are threaded lengthwise and crosswise through the terminal coils of the coil springs and which also interconnect the terminal coils of the outermost coil springs in each row with the adjacent portions of the border frame members. This construction is deficient in many respects and the cost of materials and labor for assembly is excessive when considered in the light of the relatively short period of time such units are employed in service and when considered in the light of the type of service to which the units are subjected.

Thus it is an object of this invention to produce a low cost spring assembly which can be constructed of relatively few parts and of low cost materials, which can be easily and quickly assembled in a simple and efficient manner without the use of expensive labor or equipment.

In the modification illustrated in Figures 1, 2 and 3, a plurality of coil springs 10 are arranged, as before, in spaced apart relation in lengthwise rows 12 and in crosswise rows 14. The number of coil springs in each row may be adjusted in accordance with the length and width of the spring assembly.

The terminal coils 16 of each coil spring are formed with diametrically opposed portions offset outwardly to form loops 18 which extend perpendicularly away from the terminal coils with the loops in the springs in one row of coil springs being aligned one with the other in the row, when the coil springs are located in their assembled relation.

The coil springs 10 are arranged between upper and lower flat strips 20 and 22 formed of a relatively thin though rigid sheet stock such as cardboard, fiberboard, fibrous laminates, plastic sheets and the like. The strips 20 and 22 are formed with slots 24 therein in aligned spaced apart relation corresponding to the loops 18 turned outwardly from the terminal coils of the coil springs to enable the loops 18 to be inserted through the openings 24 from the inside to extend outwardly beyond the outer surface of the strips when the coil springs are properly arranged in the desired assembled relation therebetween.

The portion of each loop 18 extending outwardly beyond the outer faces of the strips js dimensioned to enable an elongate connecting rod 26, in the form of a wire member or band formed preferably of metallic material, to be inserted therethrough, as illustrated in Figures 1, 2 and 3, whereby an assembled relation is effected which positively secures the coil springs to the strips in the desired spaced relation therebetween.

In assembly, the coil springs 10 are positioned between the strips 20 and 22 in a manner to locate the loops 18 through the slots 24. When the coil springs in one row are properly located in position of use between the strips, the connecting rod or wire 26, dimensioned to correspond to the length of the row of coil springs, is threaded endwise through the aligned loops extending outwardly beyond the strip. After insertion through the rows of loops, the ends of the rod are turned backwardly upon itself to form hooks which prevent the connecting wires or rods from becoming disengaged from the loops extending upwardly integrally from the terminal coils of the coil springs. Thus the coil springs in each of the rows are interconnected and attached securely to the strips in a manner firmly to engage the inner walls of the strips to prevent relative shifting movement and the coil springs are held in position to support the strips substantially uniformly throughout the area thereof to provide a relatively flat surface for the support of bedding thereon.

After one row of coil springs have been secured in the assembled relation to the strip, the coil springs of the next row may be located in position of use and secured by the connecting wires or rods in the desired location between the strips.

Instead of assembling the coil springs row by row between the strips, as described, all or part of the coil springs may be located on the lower strip 22 with the loops 18 extending through the slots 24 and the tie wires or rods threaded lengthwise through the aligned loops for assembly. After the coil springs have all thus been secured in position of use to the lower strip, the upper strip 20 may be positioned over the coil springs held in the desired spaced relation with the strip fitted onto the coil springs so that the loops 18 extend through the openings. Then the connecting wires or rods may be inserted endwise through the loops and the ends turned up to effect the desired assembled relation.

It will be apparent that the elements may be joined one to another in various other procedures embodying

the general principles described, any of which will be simple and easy by comparison with the laborious and expensive procedures that have heretofore been employed in producing such spring assemblies.

The assembly which is produced embodies all of the desired characteristics of a bed spring. The same number of coil springs may be employed as before to provide the desired resiliency and support and the like of the resulting spring unit will be sufficient for the use required even when the upper and lower strips are formed of cardboard and the like. When greater life is required, or when the spring unit is subjected to more rigorous use, the strips may be formed of materials having better wear and strength characteristics, such as of treated paper board, reinforced and water-proofed bonded fibrous board, sheet stock or panels, plastic sheet stock or laminates and the like.

As illustrated in the drawing, it is desirable to make use of strips in one piece for the top and the bottom wherein the strips are dimensioned to have a length and width slightly greater than the length and width of the assembled rows of coil springs fixed in the desired assembled relation therebetween. Portions of the upper and lower strips extending beyond the coil springs are preferably turned inwardly to form flaps or flanges 28 which overlap the terminal coils of the coil springs to protect the assembly from dirt and the like and to militate against the projection of bedding materials into the area occupied by the coil springs between the upper and lower strips.

By way of modification in the manufacture of a spring unit which makes use of elements of still lower cost, as illustrated in Figures 4 and 5, the terminal coils 16^a of the coil springs may be interconnected with the adjacent portions of the strips by staples 30 or tie wires 32 which are inserted from the outside through the strips to encircle the underlying portions of the terminal coils 16^a of the coil springs 10.

In the modification shown in Figure 4, the strips 20 and the terminal coils 16^a of the coil springs 10 are joined by tie wires 32 which are inserted through the strip and about the terminal coil of the coil springs and back so that the free ends of the tie wire can be intertwisted to tie in the terminal coil with the strips. It is preferred, as in the modification before described, to interconnect each terminal coil to the strips in at least two places, preferentially, though not necessarily, diametrically opposed, so that each coil spring will be held rigidly to the strip in a manner to prevent shifting movement.

In the modification shown in Fig. 5, staples 30, such as conventional furniture clips, are used to secure the terminal coils 16^a of the coil springs 10 to the underside of the strips 20 and 22. In assembly, the coil springs are located in position of use between the strips and a conventional stapling machine is employed to insert the staples inwardly through the strips and about the underlying terminal portions of the coil spring to effect the attached relation.

While the modifications shown in Figures 4 and 5 make use of elements which are more easily produced and of lower cost, the preferred modification shown in Figures 1–3 is more easily and quickly assembled into a composite structure although it is necessary to make use of coil springs preformed with loops and to make use of strips formed with openings in the desired spaced relation to receive these loops when the coil springs are in the desired spaced relation therebetween. The latter provides for a more uniform structure which is more easily and quickly assembled.

It will be understood that changes may be made in the details of construction, arrangement and operation, without departing from the spirit of the invention, especially as defined in the following claims.

I claim:

1. A bed spring unit consisting of a plurality of coil springs arranged in spaced apart relation in lengthwise and crosswise rows with at least two spaced apart portions of the terminal coils of each of the coil springs being offset perpendicularly away from the plane of the terminal coils to provide outstanding loops, upper and lower strip members of relatively rigid material adjacent the opposilte faces of the terminal coils of the coil springs and having openings therein through which the loops in the terminal coils extend outwardly beyond the outer walls of the strips, and elongate rods on the outside of said strips and threaded through said loops extending outwardly thereof for interconnecting the coil springs one with the other and the strips to effect an assembled relation.

2. A bed spring unit as claimed in claim 1 in which the loops offset from the terminal coils of the coil springs are diametrically arranged one from the other and in which the loops in the coil springs in one row are aligned one with the other and in which the connecting rod extends lengthwise through the loops.

3. A bed spring unit as claimed in claim 1 in which the ends of the connecting rods are upset to prevent displacement through the loops of the spring coils extending outwardly beyond the strips.

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