Nov. 15, 1927. 1,648,951

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SPRING STRUCTURE FOR CUSHIONS OR MATTRESSES

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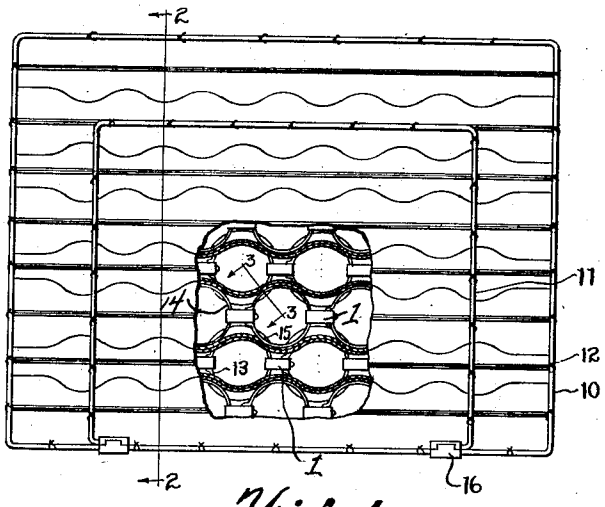


Fig. 1.

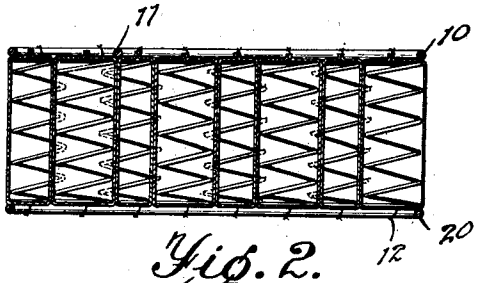


Fig. 2.

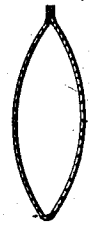


Fig. 4

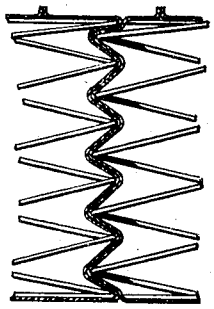


Fig. 3.

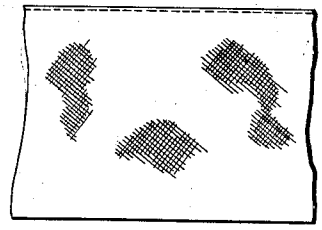


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SPRING STRUCTURE FOR CUSHIONS OR MATTRESSES.

Application filed October 21, 1921. Serial No. 509,325.

This invention relates to spring structures for cushions, mattresses and the like, and the object is to provide a structure of unique character and inexpensive form in which the spring body of the article is built up of springs connected together in rows in hinged relation, each row being supported in a pocket of a single cell for the entire row and the several rows utilized in forming the body of the cushion or mattress being secured together in a manner to hold the springs of adjacent rows in intermeshing relation. A further object is to provide a spring structure of the character stated having separate containers or pockets for each row with top and bottom border frames defining the outline of the cushion or mattress to which the border springs of the group are secured and holding the several rows together in intermeshing relationship with the springs of the rows separated by the fabric of the pockets and the springs of each row being in spaced relation permitting staggered relationship of the adjacent rows of springs. By the arrangement of the springs above mentioned and by use of coiled springs of the barrel or the cylindrical type, the springs are supported throughout their length and tendency to upset is eliminated. Also by forcing the rows together in intermeshing relation, spaces between the rows are avoided and a foundation for the filling material is provided by the fabric containers.

These general objects and the various novel features of construction of a cushion or mattress embodying my invention are hereinafter more fully described and claimed, and the preferred form of construction thereof is shown in the accompanying drawings in which—

Fig. 1 is a plan view partly broken away showing the group of springs in assembled relation.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged section taken on line 3—3 of Fig. 1 showing the intermeshing springs in the fabric containers.

Fig. 4 is a cross section of the container or pocket for a row of springs.

Fig. 5 is a side elevation thereof.

As will be noted in Fig. 1 the springs in each row are hingedly connected together by a clip 1 at preferably both the top and bottom, the springs in each row being spaced by the clip permitting limited individual action of each spring.

One of the features of this invention, as above stated, is in the provision of a spring body or cushion as above stated in which the interstices between the rows of springs are avoided, the surface of the containers, due to the manner of holding the springs together providing a base for the filling and cover material to be placed thereon. This result may be secured with a cylindrical or a barrel type of coiled spring by encasing each row of springs in a separate container as shown and then forcing the rows into intermeshing relation. Preferably the containers are of less depth than the normal length of the springs so that the tension of the spring tends to hold the fabric container taut and, by forcing the springs into the intermeshing relation and thus additionally stretching or tightening the fabric of the containers and compressing the springs, the springs are held in supporting relationship obviating any tendency to upset. By this arrangement the upper surface of the assembled spring body is comparatively smooth without spaces between the rows providing a suitable foundation for the covering material. With the use of a cylindrical or barrel type of coiled springs, the bodies of the springs are supported by the springs of adjacent rows throughout the length of the springs which is a result not possible to be secured with the hour-glass type of springs ordinarily used in cushions or mattresses as the bodies of the springs of the hour-glass type would not come to intermeshing relation or to position to support the bodies of the adjacent springs throughout their length.

Therefore, a feature of this invention is in the provision of rows of springs of the cylindrical or barrel type in separate pockets and forcing the adjacent rows into intermeshing relation in staggered relation causing a compression of the springs and the stretching of the fabric of the containers thereof. With such structure, any pressure exerted on the spring body tends to compress the springs on a vertical line without any tendency of the springs to upset due to the fact that each spring is sustained by tension of those of the adjacent rows.

Each container is formed by folding a sheet of fabric upon itself, as will be under-

stood from Figs. 4 and 5, and sewing the edges together, the depth of the pocket in cross section being less than the normal length of the springs tends of itself to hold the springs under compression. The several rows of springs each in its individual container are held together with the springs of adjacent rows in staggered relation as will be understood from Fig. 1 and this is an essential characteristic of this invention in order to prevent any open space between rows into which the filling covering may become displaced.

As will be readily understood the drawings show merely the spring structure for the cushion or mattress, which structure is to be enclosed in an outer casing or covering and this outer casing or covering to be of a character and size to hold the rows of springs together in the intermeshing relation heretofore described. Preferably, however, a top and bottom border frame indicated at 10 and 20 are used with the cushion and preferably on the upper surface an auxiliary or secondary frame 11 is provided within the outer border frame 10. The outer border frame is attached to the fabric and border springs of the group by ties 12 which may be of any approved character. The top and bottom border frames are here shown to be rectangular in form and the size is such that the several rows of springs are held together in intermeshing relation shown in Fig. 1 where it may be seen that the coil 13 of one spring intermeshes with the springs 14 and 15 of an adjacent row and the rows are therefore tied together by these border frames in a manner to exert lateral pressure on the rows to cause the intermeshing relationship of the several rows. The secondary border frame is used on the upper surface of the cushion and is in hinged relation to the outer border frame as indicated at 16 in Fig. 1. The purpose of the secondary frame is to extend over springs within the border springs of the group to bring several springs into action at the same time by a person seated on the cushion or mattress. Such secondary border frame and its purpose is more specifically described in my co-pending application Serial No. 461,990, filed April 16, 1920.

From the foregoing description it will be evident that the essential novel characteristics of the spring structure is the arrangement of the springs in rows in hinged relation in the row, the rows being assembled in the pockets of a single cell for the entire row, the springs normally being of greater length than the depth of the pocket so that the fabric of the pocket is normally held taut by the spring, and the grouping and forcing of the rows together in intermeshing relation with the springs of adjacent rows in staggered relation, which features are embodied in the appended claims.

Having thus fully described my invention, what I claim is—

1. In a cushion or mattress, a resilient body consisting of a plurality of rows of coiled springs, means hingedly connecting the springs of a row together in spaced relation, a separate fabric container forming a single cell for each row of springs, the rows of springs and containers therefor being unconnected with adjacent rows and containers and the springs of the adjacent rows being arranged in staggered relation, and means for maintaining the rows under lateral pressure forcing the springs of adjacent rows into intermeshing relation.

2. In a cushion or mattress, a resilient body consisting of a plurality of rows of coiled springs, a clip hingedly connecting adjacent springs of each row and maintaining the springs of a row separated, a separate fabric container forming a single cell for each row of springs, each row of springs and container therefor being unconnected with adjacent rows and containers and the springs of the adjacent rows being arranged in staggered relation, and a top and bottom border frame defining the outline of the cushion connected to the border of the group of containers holding the same under lateral pressure forcing the springs of adjacent rows into intermeshing relation.

3. In a cushion or mattress, a resilient body consisting of a plurality of rows of coiled springs hingedly connected together in spaced relation, a separate fabric container forming a single cell for each row of springs, and means for holding the several rows of springs together with the springs in staggered relation and under lateral pressure forcing the springs of adjacent rows into intermeshing relation.

4. A mattress or cushion comprising a plurality of rows of coiled springs arranged in rows, the springs of each row being hingedly connected together in spaced relation, the several coils of each spring being substantially of the same diameter, a separate fabric container providing a single cell for each row, the springs of adjacent rows being in staggered relation, and a top border frame defining the outline of the cushion and maintaining the rows under pressure sufficient to force the coils into intermeshing relation.

In testimony whereof, I sign this specification.

HARRY H. KNEPPER.