The present invention relates to improvements in bed frames, and for equivalent structure combined with spring members designed to form resilient supporting surfaces for mattresses and the like.

A frame made up according to the invention includes, in general, two U-shaped tubular elements symmetrical to the length or with respect to the width of the frame. The elements are bent at the corners so that the frame sides are perpendicular to each other. In general, the spring members are extended in the transverse direction with respect to the frame's length, in such a way that they stress the frame structure to flexure. There is provided, according to the invention, partial flattening of the circular tubular cross-section of the frame, at the smaller sides and curved corners of the frame.

An increase of the flexure strength in the frame's plane is obtained through this modification of the profile of the tubular cross-section.

Due to the stresses caused by the spring members on the frame's longer sides, these sides tend to deflect inwardly. It is thus necessary to provide for stiffening of these sides.

According to the invention the partial flattening of the smaller sides, adjacent those to which the spring members are anchored, compensates for the deformations imposed by the stresses generated by the spring members. The invention eliminates the bending of the longer sides and effects the stiffening thereof.

A frame made up according to the invention is substantially formed by a tubular frame in one or more pieces. The frame has shorter parallel sides adjacent those anchoring the spring members. The short sides are parallel to the line of stress of the spring members. The short sides are flattened with respect to the circular tubular cross-section; the deformation being extended around the frame's corners. In practice, there is provided a frame which has two adjacent and opposed U shaped elements, joined together and flattened at the joined sides which are parallel to the lines of stress or tension of the springs.

The invention will be better understood from the following description and the accompanying drawing, which illustrates an embodiment of said invention.

In the drawing:

FIG. 1 illustrates a perspective view of a bed frame, according to the invention, without any springs.

FIG. 2 illustrates a cross-section of the frame's tubular structure taken along the line II—II of FIG. 1.

FIG. 3 illustrates the deformed tubular structure in a section taken along the line III—III of FIG. 1.

FIGS. 4 and 5 are plan views of the frame, before and after the springs are assembled.

FIG. 6 is a section of the central zone of the frame's longitudinal sides taken on line VI—VI of FIG. 1.

According to the accompanying drawing, a rectangular bed frame or the like is formed by tubular elements having a circular cross-section as illustrated in FIG. 2. These tubular elements from the longer sides 1 to which the sinusoidal springs 2 are anchored as indicated in FIG. 5.

The sides 3 are perpendicular to the sides 1 and define the frame's shorter sides. Sides 2 are parallel to the line of tension of the springs 2. The frame's corners 4 are curved and continuous with the tubular sides 1 and 2. In general, the frame is formed by two U-shaped symmetrical members joined along the lines 5 (see FIG. 1). Four legs 6 are detachably secured to sides 1 near corners 4.

In order to stiffen the sides 3 and provide resistance to flexure in the plane of the frame caused by loading of the springs 2, the sides 3 are partly deformed by flattening in a direction perpendicular to the plane in which the frame lies, in such a way to assume a somewhat oval or flattened cross-sectional configuration as illustrated, for example, in FIG. 5. The flattening zone is extended around the arculate corner portions 4.

The partial flattening of the tubular structure increases the resistance to flexure of the portions 3 and increase the stiffening of the sides 1 which are continuous with arculate corners 4.

In order to increase the resistance of the central zone 1a of the sides 1 to flexure in both vertical direction and horizontal direction, central sections 1a of sides 1 are slightly flattened to oval shape. The major axis of the flattened section 1a is inclined outwardly and upward and downwardly inward with respect to the horizontal plane of the frame.

While I have shown and described what I believe to be the best embodiments of my invention, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. A bed frame construction, comprising an endless flat rigid rectangular tubular member having two parallel shorter sides and two parallel longer sides perpendicularly disposed to the shorter sides, said member having four arcurately bent tapered corners continuous with the shorter and longer sides, said shorter sides and corners being flattened to substantially oval form through their lengths, the major axes of the flattened sides and corners being disposed in the plane of said member, and a plurality of sinusuous springs tensioned along their lengths disposed in axially parallel positions in the plane of said member, said springs being secured at opposite ends thereof to spaced points only along the longer sides thereof, the flattened sides and corners of said member resisting the tension in said springs and forces applied by the springs to the longer sides when the springs are loaded, each of the longer sides having a central section and two end sections, each central section being flattened to substantially oval form, each central section having two flat opposed faces disposed parallel to each other, the major axes of the flattened central sections being inclined outwardly upward and downwardly inward with respect to the horizontal plane of said member, the end sections of the longer sides being circular in cross-section, each end section being integrally joined at one end to a central section by a tapered transition section, each end section being integrally joined at its other end to a round end of one of the tapered corners, whereby the longer sides resist bending when strains are applied to the longer sides in both vertical and horizontal directions.

2. A bed frame construction, comprising an endless flat rectangular tubular member having two parallel shorter sides and two parallel longer sides perpendicularly disposed to the shorter sides for engaging opposite ends of a plurality of sinusuous springs in the plane of said member, said member having four arcurately bent corners continuous with the shorter and longer sides, said shorter sides and corners being flattened to substantially oval form through their lengths, the major axes of the flattened sides and corners being disposed in the plane
of said member, each of the longer sides having a central section and two end sections, each central section being flattened to substantially oval form, each central section having two flat opposed faces disposed parallel to each other, the major axes of the flattened central sections being inclined outwardly upward and downwardly inward with respect to the horizontal plane of said member, the end sections of the longer sides being circular in cross-section, each end section being integrally joined at one end to a central section by a tapered transition section, each end section being integrally jointed at its other end to a round end of one of the tapered corners, whereby the longer sides resist bending when strains are applied to the longer sides in both vertical and horizontal directions.

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