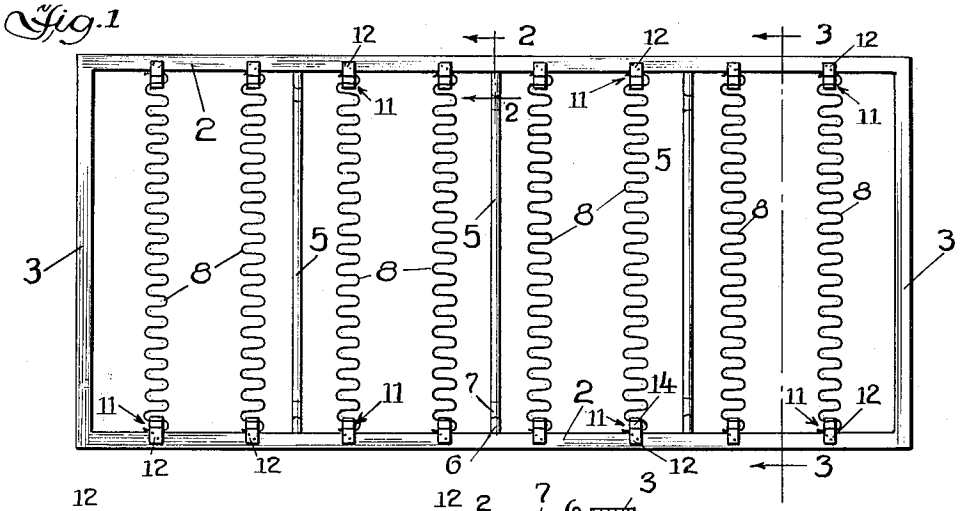
July 23, 1963 L. J. ROTHBAUER, JR 3,098,244

SUPPORT FRAME FOR FURNITURE

Filed Feb. 10, 1961

Fig. 1



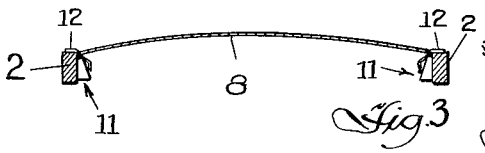


Fig. 3

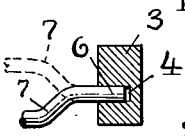


Fig. 2

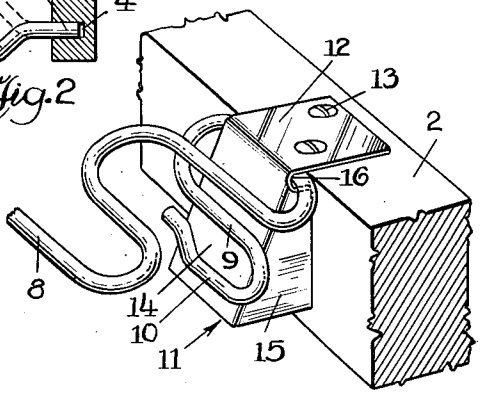


Fig. 4

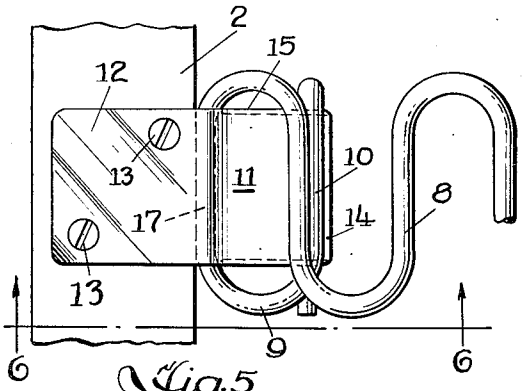


Fig. 5

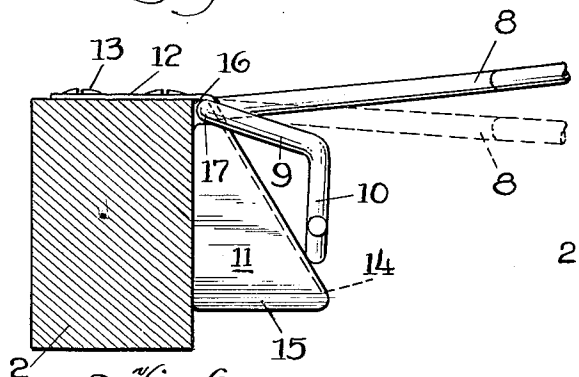
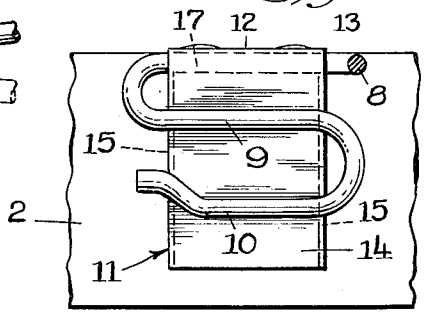


Fig. 6

Fig. 7



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3,098,244

SUPPORT FRAME FOR FURNITURE

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Filed Feb. 10, 1961, Ser. No. 88,464
1 Claim. (Cl. 5—247)

This invention relates to a support frame for furniture, and is particularly concerned with means for making a strong furniture frame that will impart a maximum of comfort into the article of furniture built on said frame.

The frame may be of any desirable configuration, depending upon the intended shape of the article of furniture to be built thereon, but is illustrated as a rectangular member suitable for a bed, sofa or a wide chair. The frame comprises two longitudinal members joined at their ends by two transverse members and reinforced intermediate its length by a plurality of transverse braces. The frame also includes a plurality of transversely extending springs. The springs are spaced above the plane in which the ends of the braces are secured, to provide a resilient support for a mattress or pad positioned thereon.

The frame is comparatively shallow, and braces extending transversely of the frame within the horizontal planes of the frame will not permit springs mounted on the frame to be flexed to their full capacity. In similar structures the intermediate portions of the braces have been bent below the bottom horizontal plane of the frame to provide necessary clearance so that the flexing amplitude of the springs is not limited to such an extent that the comfort inherent in the springs is seriously impaired. Structures of this type, however, have the disadvantage, when shipped as component parts of the furniture to be fabricated, of requiring extra shipping and storage space because the intermediate portions of the braces project beyond the lowermost horizontal plane of the frame.

In the frame constructed in accordance with the present invention, the braces are rotatably mounted in the longitudinal frame members and are curved adjacent said longitudinal frame members. When the frame is shipped or stored, the braces are located within the confines of the frame members, and, therefore, do not require any extra shipping or storage space. When the frame is to be incorporated into an article of furniture, the braces are rotated until each of them extends into its lowermost position to provide the maximum flexing amplitude for the springs so that a mattress or pad supported on the springs are not unduly restricted in their downward vertical movement caused by the weight of a person lying or sitting on the article of furniture.

The longitudinal frame members are provided with a plurality of wedge-shaped brackets for holding the ends of the transversely extending springs. The springs are preferably flat serpentine springs and have their ends bent over to bear against the wedge surfaces of the brackets, thereby holding the springs in arched position.

The structure by means of which the above and other advantages of the invention are attained is fully described in the following specification, taken in conjunction with the accompanying drawings which illustrate a preferred embodiment of the invention, and in which:

FIG. 1 is a top plan view of a support frame embodying my invention;

FIG. 2 is a cross sectional view, taken along the line 2—2 of FIG. 1;

FIG. 3 is a cross sectional view, taken along the line 3—3 of FIG. 1;

FIG. 4 is an enlarged fragmentary perspective view, showing one end of the spring secured to the bracket;

FIG. 5 is an enlarged fragmentary top plan view, showing an end of the spring secured to the bracket;

FIG. 6 is a cross sectional view, taken along the line 6—6 of FIG. 5; and

FIG. 7 is an enlarged fragmentary side elevational view, showing the end of the spring positioned against the wedge surface of the bracket.

Referring to the drawings, the frame includes a pair of longitudinal members 2 joined together at their ends by transverse members 3 secured thereto in any suitable manner. The inner surface of each longitudinal member is provided with a plurality of recesses 4 aligned with corresponding recesses in the opposite member. A brace 5 has its opposite ends 6 rotatably mounted in the recesses 4. The number of braces provided in the illustrated embodiment is three, but it will be understood that this number may be varied, depending upon the length of the frame. The braces are bent adjacent each end, as indicated at 7. When the frame is packed for shipment or storage, each brace is turned so that its intermediate portion is located within the confines of the top and bottom planes of the frame members 2 and 3.

The braces rigidify the frame and also limit the downward movement of a mattress or pad supported on the springs when a person lies or sits on the furniture in which the frame is incorporated. The rotational mounting of the ends of the braces permits them to turn through an arc of 90° to provide extra clearance for the mattress or pad. The braces may be turned to their lowermost positions manually when the frame is incorporated into an article of furniture, or will turn to such position under the force exerted by the weight of a person lying or sitting on the furniture. The additional downward movement of the mattress or pad permitted by the rotation of the braces permits maximum amplitude for the flexure of the springs caused by the weight of a person sitting or lying on the furniture, and thereby adds to the comfort of the furniture.

The number of springs provided in any frame may be varied, depending upon the length of the frame. For example, in FIG. 1 two springs 8 extend transversely of the frame between adjacent braces and between each end member and the adjacent brace. Preferably the spacing between the springs is uniform throughout the length of the frame, but the spacing between the springs near the ends of the frame may be increased where the load to be carried is not as great as in the center portion of the frame. Each spring 8 is preferably made of round spring steel bent in opposite directions in a single plane throughout its length to form a flat serpentine member cut to proper length. Each end portion of the spring is bent inwardly and then downwardly from the flat plane of the intermediate portion of the spring, as indicated at 9 and 10, respectively, for a purpose hereinafter described.

Wedge-shaped brackets 11 are secured to the longitudinal frame members 2 in position to engage each end of each spring 8. Each bracket includes a horizontal lip 12 secured to the top surface of the frame member 2 by nail or screws 13. The lip 12 may be secured in any suitable manner. If the longitudinal frame members are tubular, they may be slotted, and the end of the lip 12 may be bent to engage the slot. If the longitudinal frame members are metal, the lip 12 may be welded thereto.

The bracket 11 has one surface 14 bent at an obtuse angle to the lip 12 and a pair of wings 15 bent outwardly at 90° from opposite edges of surface 14. The outer end of each wing 15 butts against the inner surface of the frame member 2 to hold the surface 14 at the desired angle. The upper edges of wings 15 are shaped to provide notches 16 into which a section 17 of the spring 8 is adapted to fit. The bracket and end of spring 8 are assembled with the frame member by inserting the lip 12 between adjacent sections of the spring and positioning

the notches **16** in engagement with the section **17**, and then securing the lip **12** to the frame member **2**.

When the bracket **11** is secured to the frame member **2** the end section **10** bears against the surface **14**. When the opposite end of spring **8** and the bracket are secured to the opposite longitudinal frame member, the inclined angle of surfaces **14** and the ends of the spring cooperate to hold the intermediate portion of the spring in an arch extending slightly above the plane of the upper surfaces of the frame members. The slight upward curve of the spring adds a slight stiffness to the spring that prevents collapse of the spring when it is depressed by the weight of a person lying or sitting on the article of furniture in which the frame is incorporated.

Although I have described a preferred embodiment of the invention in considerable detail, it will be understood that the description thereof is intended to be illustrative, rather than restrictive, as many details of construction may be modified or changed without departing from the spirit or scope of the invention. Accordingly, I do not desire to be restricted to the exact construction described.

I claim:

In a support frame, a longitudinal frame member and a wedge-shaped bracket for securing the end of a transversely extending spring to said longitudinal frame member, said bracket having a lip secured to said frame member and a flat surface extending downwardly at an obtuse angle to the plane of said lip, said flat surface butting against the free end of said spring to help support the intermediate portion of said spring in the form of an arch extending above the upper surface of said frame member, the end of said arch having a predetermined angular relationship to said frame member.

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