A sofa bed construction of the type having a sofa frame and a bed frame which is adapted to be stored within the sofa frame when in a collapsed condition but which can also be opened into a bed. The sofa frame of the invention consists of metal members which define flanges at particular locations. The sofa frame is adapted to be covered with upholstery material with the material extending between flanges defined by the respective metal frame members. A plurality of clips are provided for securing the upholstery material to the flanges. These clips comprise U-shaped resilient members having side walls adapted to fit around the flanges and associated upholstery material. These clips thereby resiliently hold the material in position relative to the metal frame members.
UPHOLSTERED FRAME MEANS FOR SOFA BEDS

This invention relates to a sofa bed construction of the general type comprising a sofa frame and associated bed frame. The invention is particularly concerned with means for securing upholstery material to the sofa frame portion of the bed whereby the structure will have an attractive appearance when being used as a sofa.

In the construction of sofa beds, problems arise due to the fact that the sofa frame portion must have upholstery associated therewith, and the upholstery must be arranged in such a manner that it will not interfere with the bed frame operation. In typical sofa bed constructions, the sofa frame portions are made of wood, and the upholstery is secured in place by means of tacks and the like with the over-all operation being relatively inefficient.

It is a general object of this invention to provide an improved sofa bed construction which is characterized by an improved sofa frame and upholstery arrangement whereby the bed can be manufactured in a highly efficient manner.

It is a more particular object of this invention to provide a sofa bed construction employing a metal frame arrangement designed for simplified application of upholstery material thereto.

It is a still further object of this invention to provide a sofa bed construction which includes a clip arrangement for securing upholstery material to the sofa frame whereby the construction can be assembled in a highly efficient manner.

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

FIG. 1 is a perspective view, partly cut away, illustrating a sofa frame structure of the type contemplated by this invention;

FIG. 2 is a perspective view illustrating a clip structure characterized by the features of this invention;

FIG. 3 is an enlarged fragmentary sectional view taken about the line 3-3 of FIG. 1 illustrating the arrangement for securing upholstery to side frame members;

FIG. 4 is an enlarged fragmentary sectional view taken about the line 4-4 of FIG. 1 illustrating the manner in which upholstery material is secured to the front frame member;

FIG. 5 is an enlarged fragmentary sectional view illustrating the manner in which upholstery material is secured at the intermediate level of the back frame member; and,

FIG. 6 is an enlarged fragmentary sectional view illustrating the manner in which upholstery material is secured at the bottom outer edge of the back frame member.

The sofa bed construction of this invention is of the general type having a sofa frame portion and a bed frame portion. The bed frame portion has a collapsed position within the sofa frame in which case the construction is utilized as a conventional sofa. When converting the construction to a bed, this bed frame portion is opened or unfolded. The following description relates particularly to the sofa frame portion of a sofa bed, and it will be understood that a variety of collapsible bed frames may be utilized in conjunction with the sofa frame to be described. Reference is made to Bronstein U.S. Pat. No. 2,982,974 for an example of a bed frame construction which could be utilized with the sofa frame described herein.

The particular sofa frame of this invention consists of a plurality of metal frame members comprising front and back members and interconnecting side members. These metal members are all provided with flanges, and the frame members are designed so that upholstery material can be positioned thereon. The flanges are located so that the upholstery material is positioned in the area of the flanges, and clip means are employed for securing the material to the flanges.

The clip means employed in the practice of the invention comprise U-shaped members in the form of channel sections. These members include a base and side walls integrally formed with the base. The side walls extend angularly inwardly relative to each other whereby a small opening is defined between the outer edges of the side walls. The size of this opening is less than the combined thickness of a flange and upholstery material associated therewith. The opening defined between the side walls in the area of the base is, however, approximately equal to or greater than the combined thickness of a flange and the associated upholstery material.

The clips are formed of plastic or other resilient material and are adapted to be forced into position for holding the upholstery material relative to the flanges. Thus, the side walls are forced apart from their normal position to enter into gripping relationship with the upholstery and associated flanges.

The sofa frame 10 shown in FIG. 1 is adapted to receive a collapsed bed frame. The bed frame is shown in phantom at 12, and, as indicated, any suitable bed frame could be utilized.

The sofa frame includes a front frame member 14 which extends transversely between side frame members 16. A back frame member 18 also extends transversely between the side frame members.

As best shown in FIG. 4, the front frame defines upper and lower flanges 20 and 22. This frame may be a single integrally formed member with a rib 24 being provided for reinforcement.

The side frames 16 each include a top rail 26, an intermediate rail 28, and a bottom rail 30. The back frame defines a top rail 32, and a transversely extending rail 34. An additional transversely extending rail 36 also extends between the side frame members 16.

As best shown in FIG. 3, the top rail 26 for each side frame defines downward extending flanges 38 and 40. The intermediate rail 28 defines a downward extending flange 42 while the bottom rail 30 defines an inwardly extending flange 44.

FIG. 5 illustrates the lower end of the back frame rail 34. This back frame rail defines an upwardly extending flange 46. The additional back frame rail 36 defines an upward extending flange 48 as shown in FIG. 6.

The frame members described are particularly suited for the application of upholstery material. Considering the front frame member 14, upholstery material 50 is provided to extend from the top flange 20 completely over the front surface of the frame member, and then into position around the bottom flange 22. The material is adapted to be held in place on this frame member by means of clips 52. As best shown in FIG. 2, each clip 52 defines a base 54 having opposed side walls 56 asso-
The clips are formed of a resilient material such as polyethylene, polypropylene or some other plastic material. The channel-like cross section in a normal condition appears as shown in FIGS. 2 and 4, wherein the entry portion 58 comprises a relatively small opening due to the angular disposition of the side walls 56. The size of the opening 58 is smaller than the combined thickness of the upholstery 50 fit around an associated flange, and in order to insure a tight fit, the size of the opening may be equal to or smaller than the flange thickness alone.

In use, a clip 52 is merely forced into position for engagement of the side walls thereof with the upholstery as shown at the top of FIG. 4.

Referring to FIG. 3, the upholstery material is secured to an inner flange 42 at an intermediate level of the sofa frame as determined by the location of the rail 28. As indicated, one end of the upholstery section 60 is attached to this flange by means of clips 52.

The upholstery section 60 extends over the top rail 26 and then downwardly toward the bottom rail 30. The other end of this upholstery extends around the bottom rail flange 44 for attachment to this flange by means of clips 52.

In the case of the back of the structure, the transversely extending rail 34 provides a means for securing one end of fabric section 62. As shown in FIG. 5, the clips 52 are utilized for holding this fabric relative to flange 46.

The fabric section 62 extends over the top rail 32 of the back section, and then downwardly around the lower end of the transversely extending rail 36. Clips 52 are utilized for securing the fabric to the flange 48 of this rail as shown in FIG. 6.

The construction described provides a highly efficient means for providing upholstery on the sofa frame portion of a sofa bed. It will be apparent that the metal members can be readily constructed from relatively inexpensive metal sections and assembled by routine techniques. Furthermore, the use of metal members provides an extremely strong arrangement which is particularly compatible with the bed frames which are usually also made of metal. Thus, the connections between the respective frames are more easily made and are more secure when metal-to-metal connections are involved.

The clip structures 52 are also quite easily manufactured. These structures may be formed from elongated channels which are cut into short lengths whereby the clips can be obtained on a low cost - high production basis. Various plastics such as polyethylene and polypropylene are quite suitable for use in the production of these clips.

The manner of locating the fabric ends relative to the flanges, and the subsequent application of the clips is also accomplished in an extremely straightforward fashion. These operations can be carried out quite effectively by relatively unskilled personnel which greatly improves the efficiency of the system. In this connection, more than one layer of upholstery or related materials can be readily applied, particularly since it is a simple matter to provide clips of different sizes, depending on the particular performance desired.

It will be understood that various changes and modifications may be made in the above described construction which provide the characteristics of the invention without departing from the spirit thereof particularly as defined in the following claims.

That which is claimed is:

1. A sofa bed comprising a collapsible metal bed frame assembly, a substantially rigid, metal, sofa frame assembly, said sofa frame assembly including a sofa front metal frame portion, a sofa right side metal frame portion, a sofa left side metal frame portion and a sofa rear metal frame portion, metal flange portions formed on each of said metal frame portions, means for covering said sofa frame assembly, said covering means comprising a cover fabric, said cover fabric including a first cover fabric portion covering said front metal frame portion and lying in a first generally vertically disposed plane, a second cover fabric portion covering said rear metal frame portion and lying in a second generally vertically disposed plane, a third cover fabric portion covering said right side metal frame portion and lying in a third generally vertically disposed plane and a fourth cover fabric portion covering said left side metal frame portion and lying in a fourth generally vertically disposed plane, and each of said fabric portions defining inturned portions extending to said metal flange portions, means for securing said inturned fabric portions to said metal flange portions, said securing means comprising a plurality of resilient clips, each of said clips including means for engaging a cover fabric portion fitted into engagement with a metal flange portion and for providing a bias force to maintain said engaged cover fabric portion in a relatively stationary contacting engagement with one of said metal flange portions, at least some of said metal flange portions being disposed on said metal frame portions of said sofa frame assembly out of the generally vertically disposed planes formed by their respective cover fabric portions such that said resilient clips are substantially hidden from view.

2. A sofa bed as defined in claim 1 wherein each of said resilient clips comprises a generally U-shaped member having an elongated base portion and two wall portions, each of said wall portions forming an acute angle of a first magnitude at its juncture with said base portion when said resilient clip is in a non-stressed or unbiased condition.

3. A sofa bed as defined in claim 2 wherein each of said wall portions forms an angle of a second magnitude at its juncture with said base portion when said resilient clip is in a stressed or biased condition due to its engagement of a cover fabric portion and its maintenance of said engaged cover fabric portion in a relatively stationary contacting engagement with one of said metal flange portions, said second magnitude being greater than said first magnitude.

4. A sofa bed as defined in claim 3 wherein said U-shaped member comprises an integrally formed plastic member.

5. A sofa bed as defined in claim 1 wherein said front frame portion includes first and second metal flange portions for receiving said resilient clips, said first and second metal flange portions being disposed in a fifth plane, said fifth plane being substantially parallel to and horizontally spaced from said first plane.
6. A sofa bed as defined in claim 1 wherein said rear frame portion includes a third metal flange portion for receiving said resilient clips, said third metal flange portion being disposed in a sixth plane, said sixth plane being substantially parallel to and horizontally spaced from said second plane.

7. A sofa bed as defined in claim 1 wherein said right side frame portion includes a fourth metal flange portion for receiving said resilient clips, said fourth metal flange portion being disposed in a seventh plane, said seventh plane being substantially perpendicular to said third plane.

8. A sofa bed as defined in claim 1 wherein said left side frame portion includes a fifth metal flange portion for receiving said resilient clips, said fifth metal flange portion being disposed in an eighth plane, said eighth plane being substantially perpendicular to said fourth plane.

* * * * *