

[54] **SLUNG FURNITURE**

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[52] U.S. Cl. 297/441, 5/82, 297/445, 297/248, 297/456, 297/457

[51] Int. Cl. A47c 7/02, A47c 7/14, A47c 4/02

[58] Field of Search 297/218, 232, 234, 244, 248, 297/440-450, 452, 455-457; 5/82, 334-345; 182/216, 228; 108/64; 245/182; 287/60, 126

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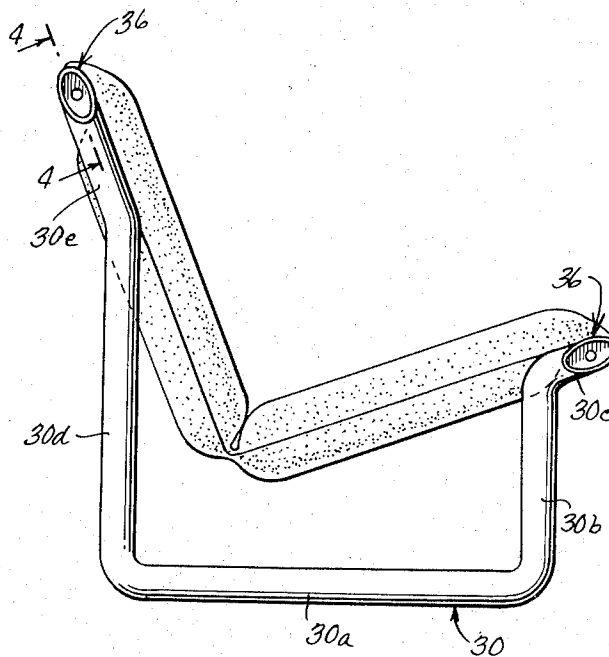
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[57] **ABSTRACT**

An article of furniture such as a chair formed from two identical side pieces joined together by identical front and rear stretchers. A fabric or other support surface is slung between the front and rear stretchers through the use of a channel in each stretcher defined by an interior portion of the stretcher and an access opening thereto through the stretcher wall. The front and rear edges of the support structure are positioned within the channels in the stretchers. An upholstered cushion structure may be slung in this fashion, with a cushion being formed from top and bottom sheets of fabric material sewn together along two sides thereof to form an open-ended bag, which is then filled with resilient material. An enlargement, such as a cord, is attached to each end of each fabric piece at each open end of the bag, to provide a total of four enlargements, two at each end of the bag. The open ends of the bags are secured to the two stretchers by positioning the two enlargements at each open bag end within the corresponding stretcher channel, thereby holding the cushion and closing the ends of the bag.

8 Claims, 30 Drawing Figures



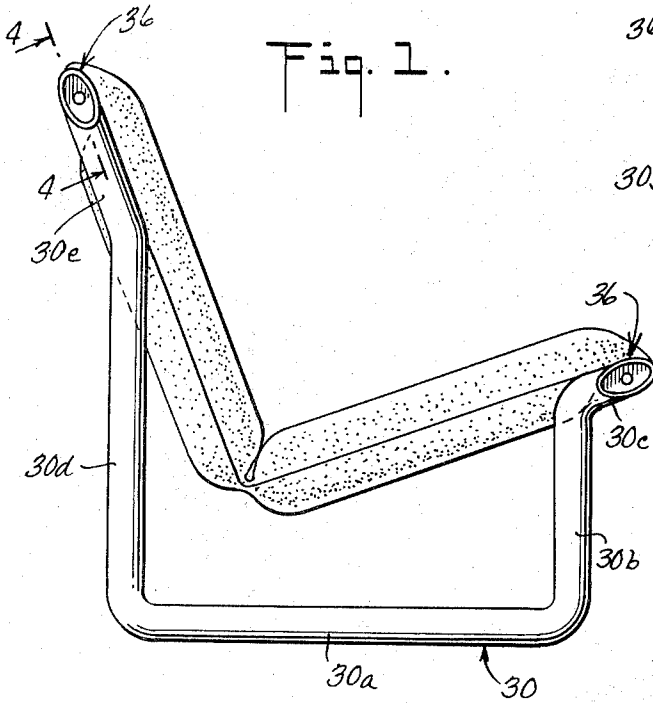


Fig. 1.

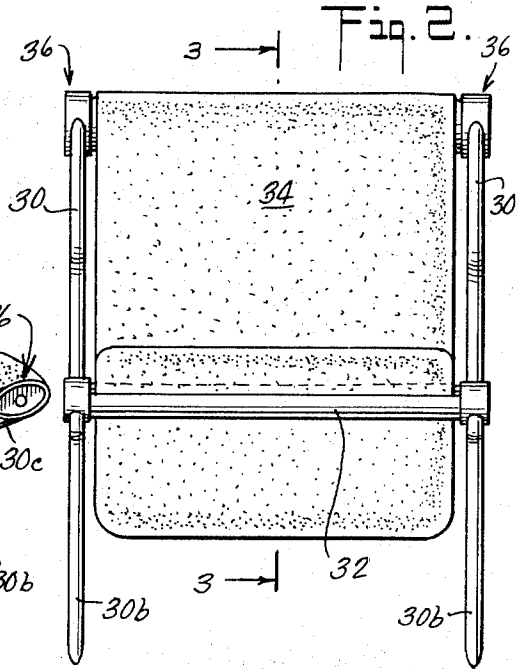


Fig. 2.

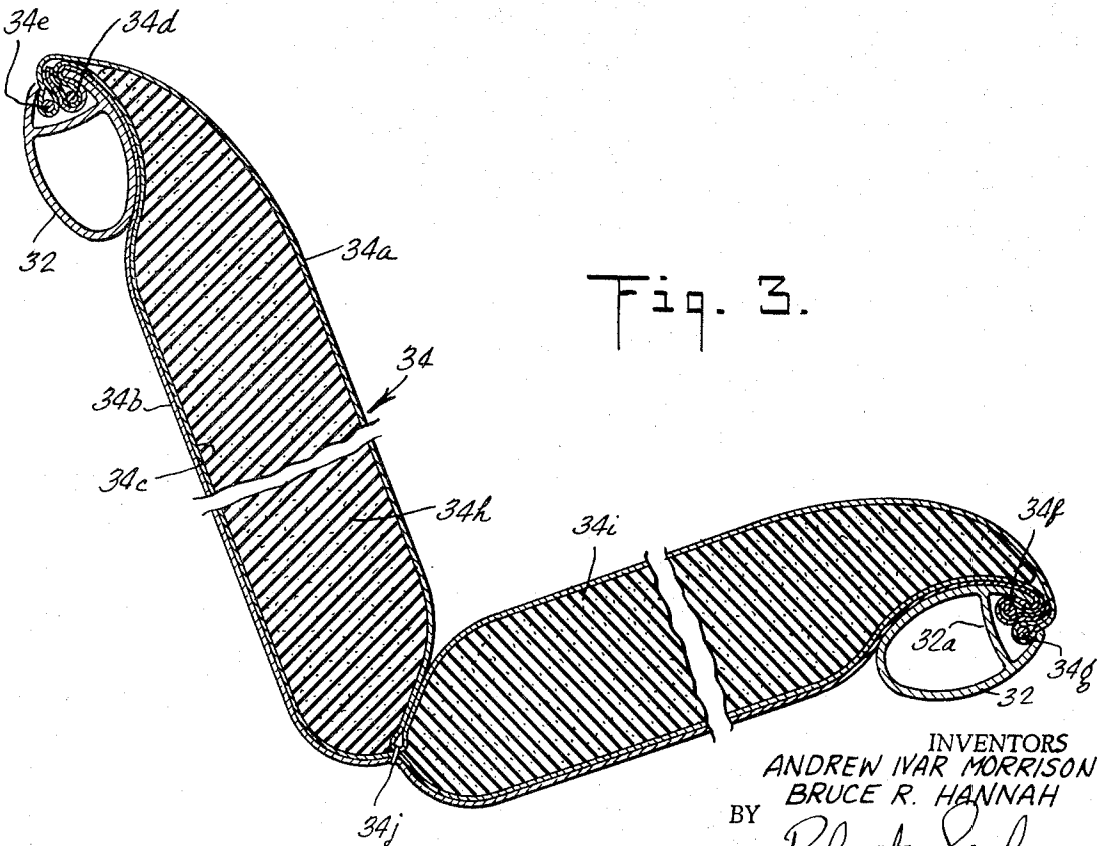


Fig. 3.

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Fig. 4.

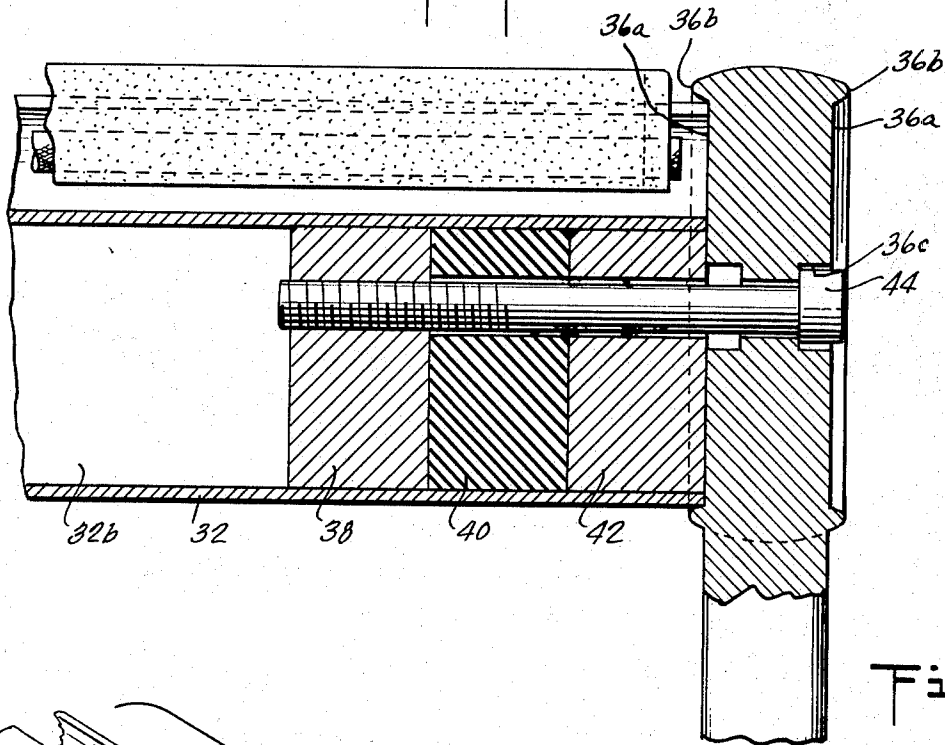


Fig. 4a.

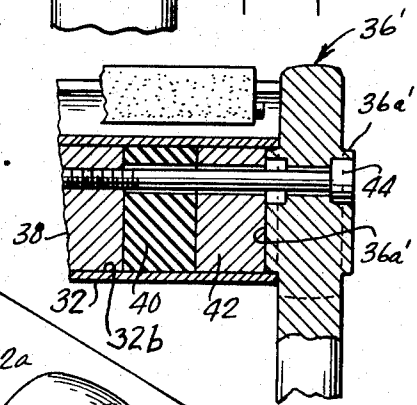


Fig. 5.

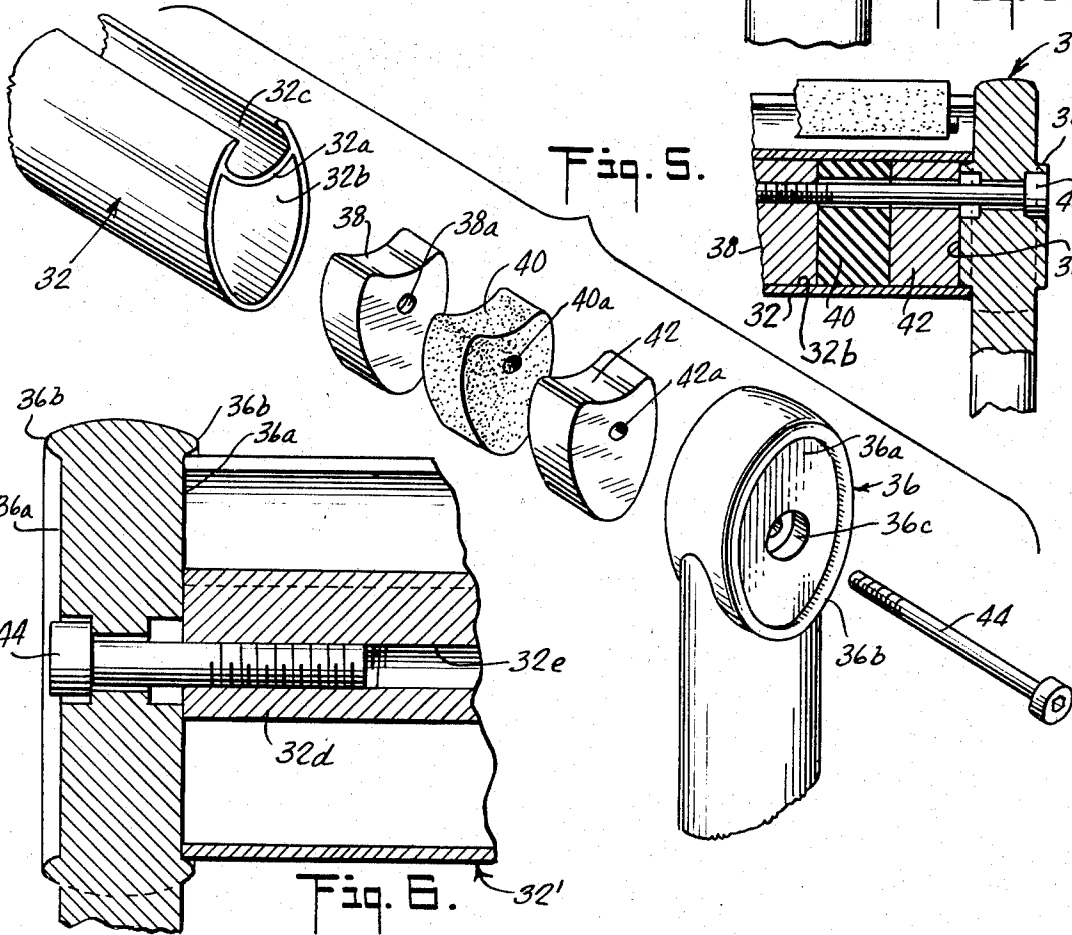


Fig. 6.

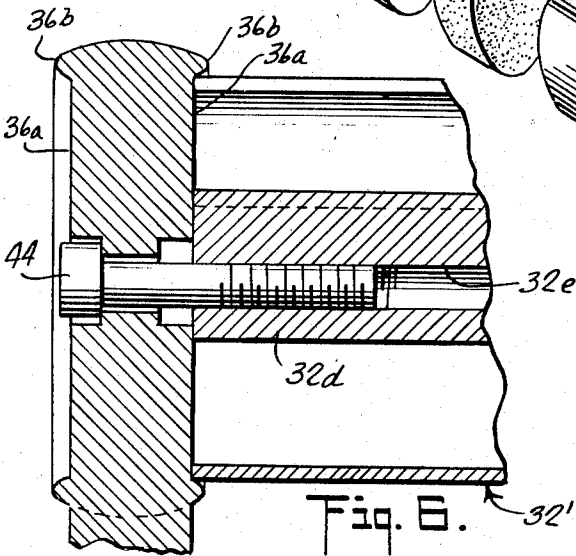


Fig. 7.

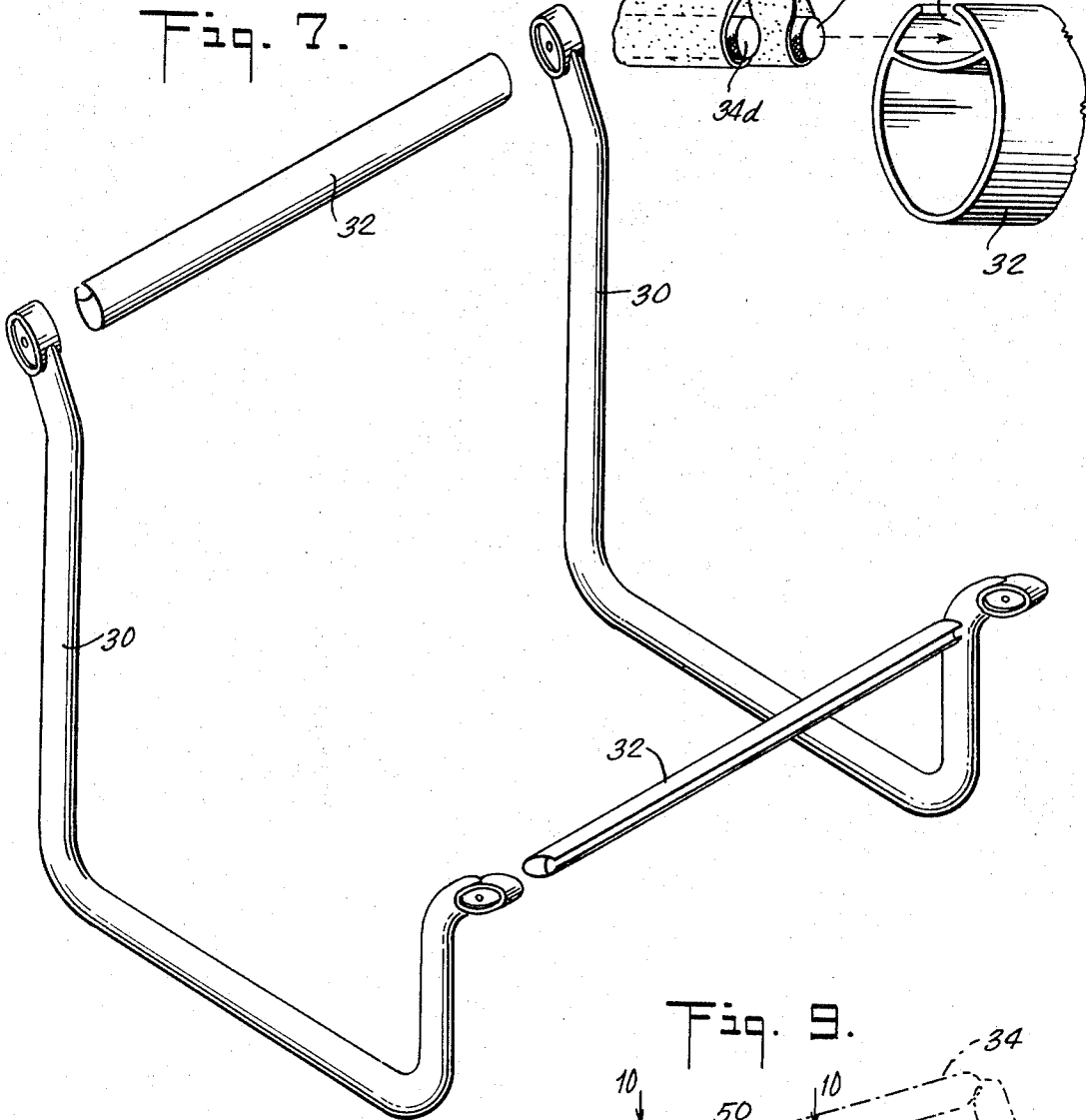


Fig. 8.

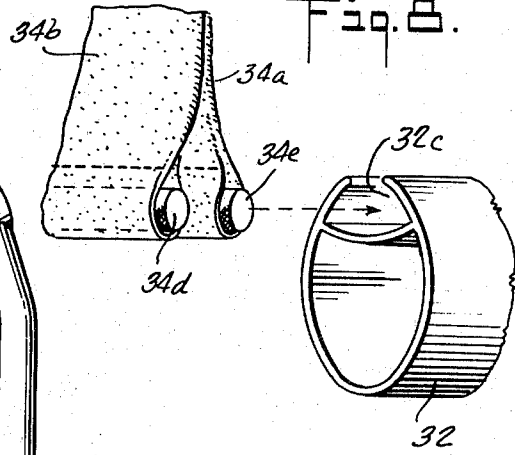


Fig. 10.

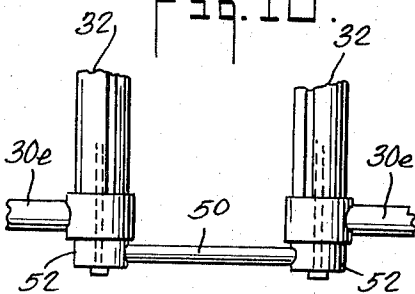


Fig. 9.

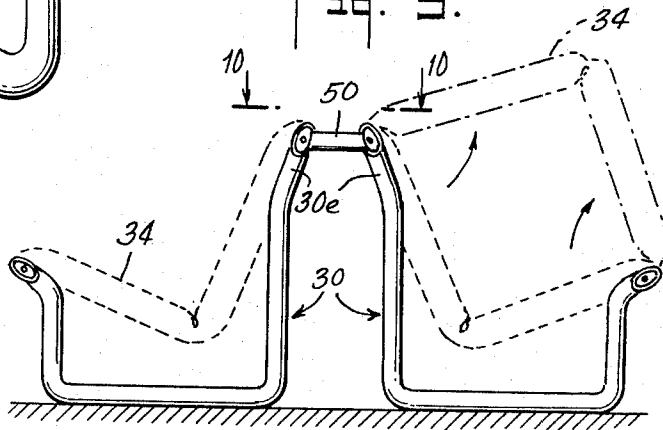


Fig. 11.

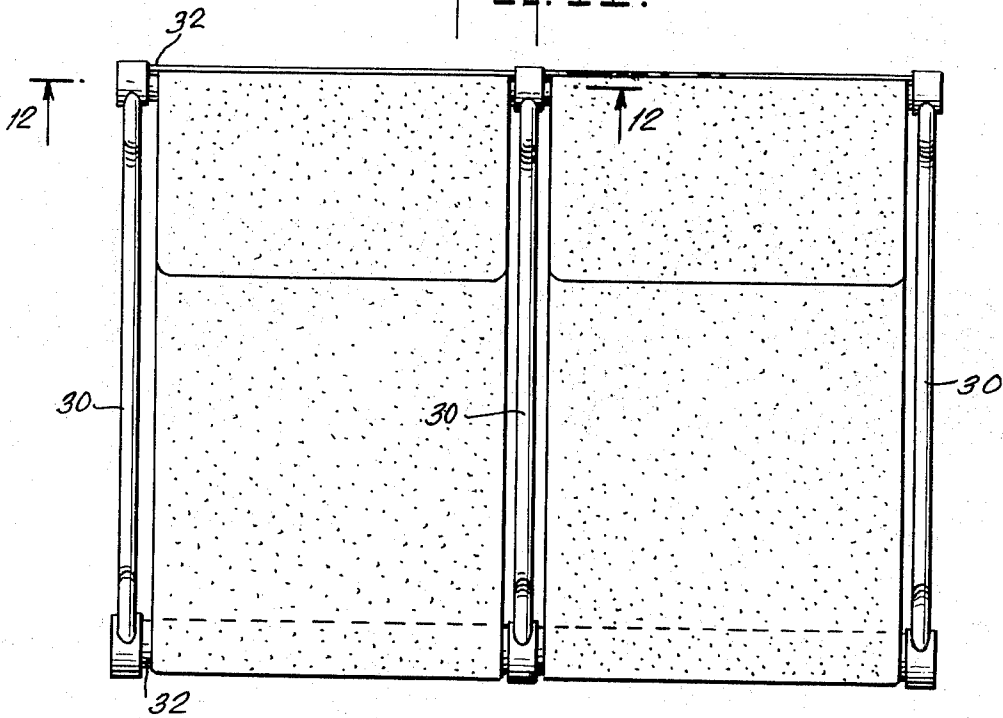


Fig. 12.

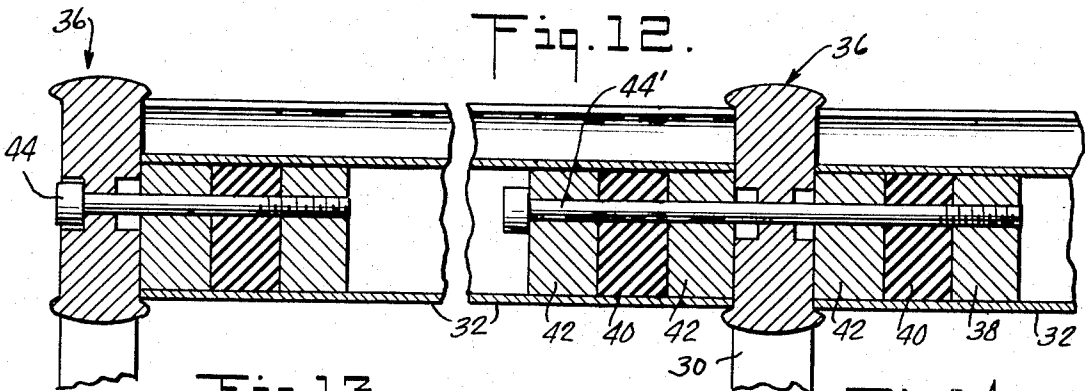


Fig. 13.

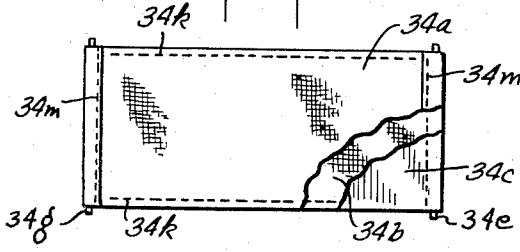


Fig. 14.

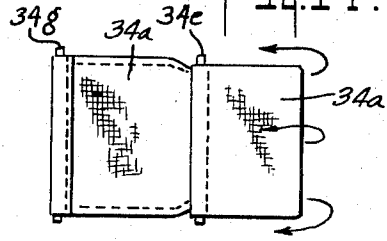


Fig. 15.

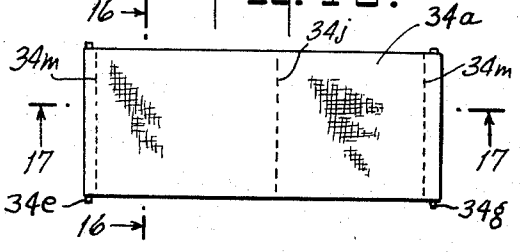


Fig. 16.

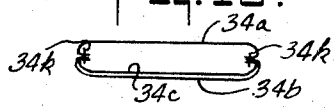


Fig. 17.

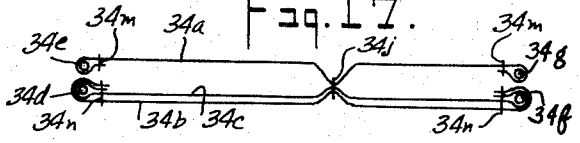


Fig. 18.

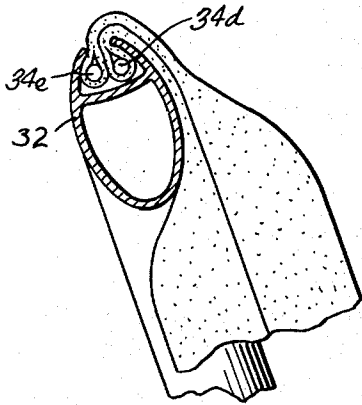


Fig. 19.

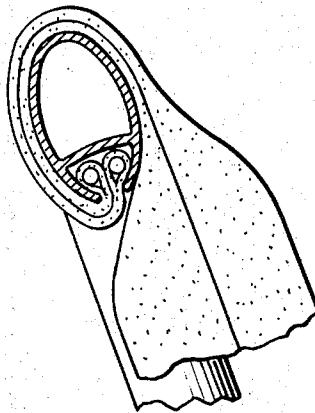


Fig. 20.

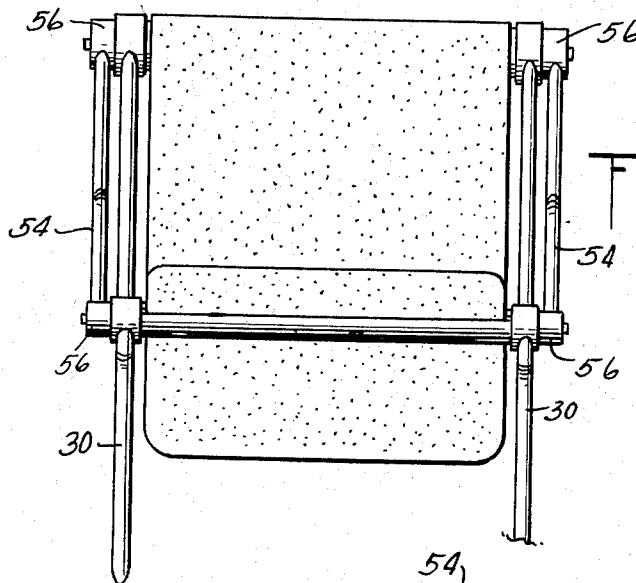
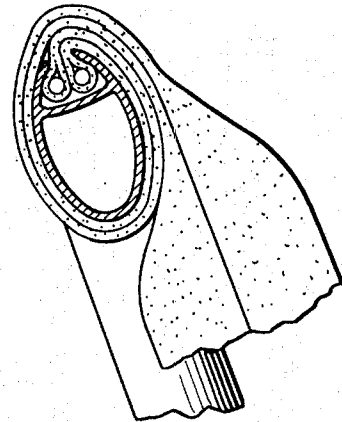


Fig. 21.

Fig. 23.

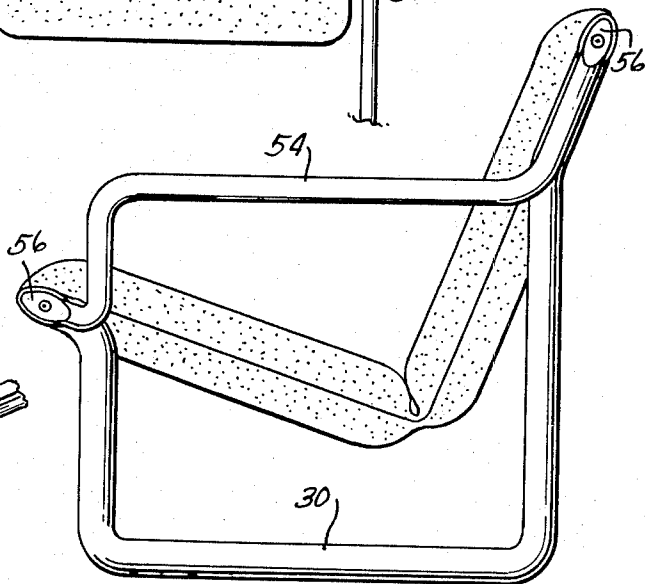
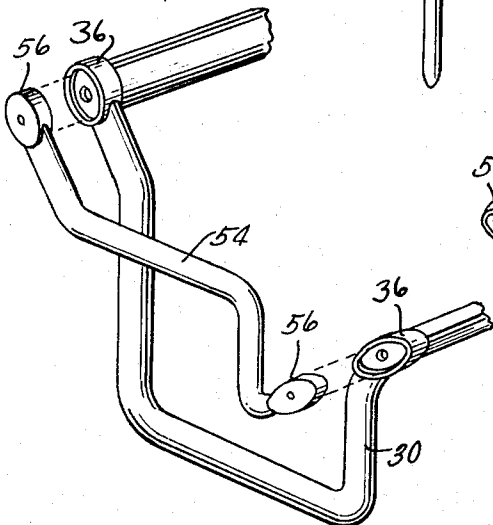


Fig. 22.

Fig. 24.

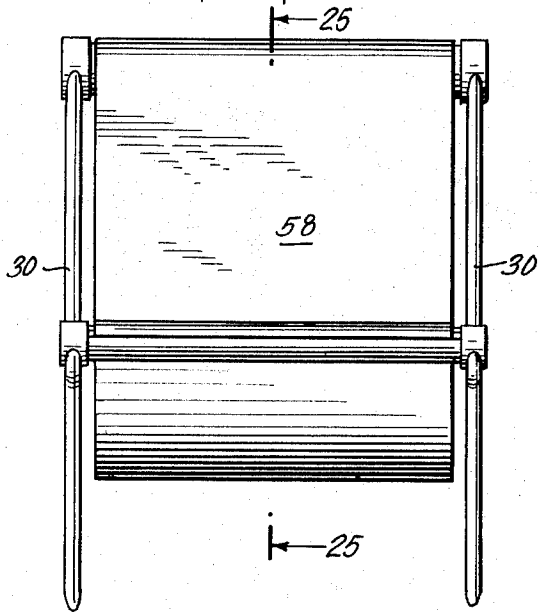


Fig. 25.

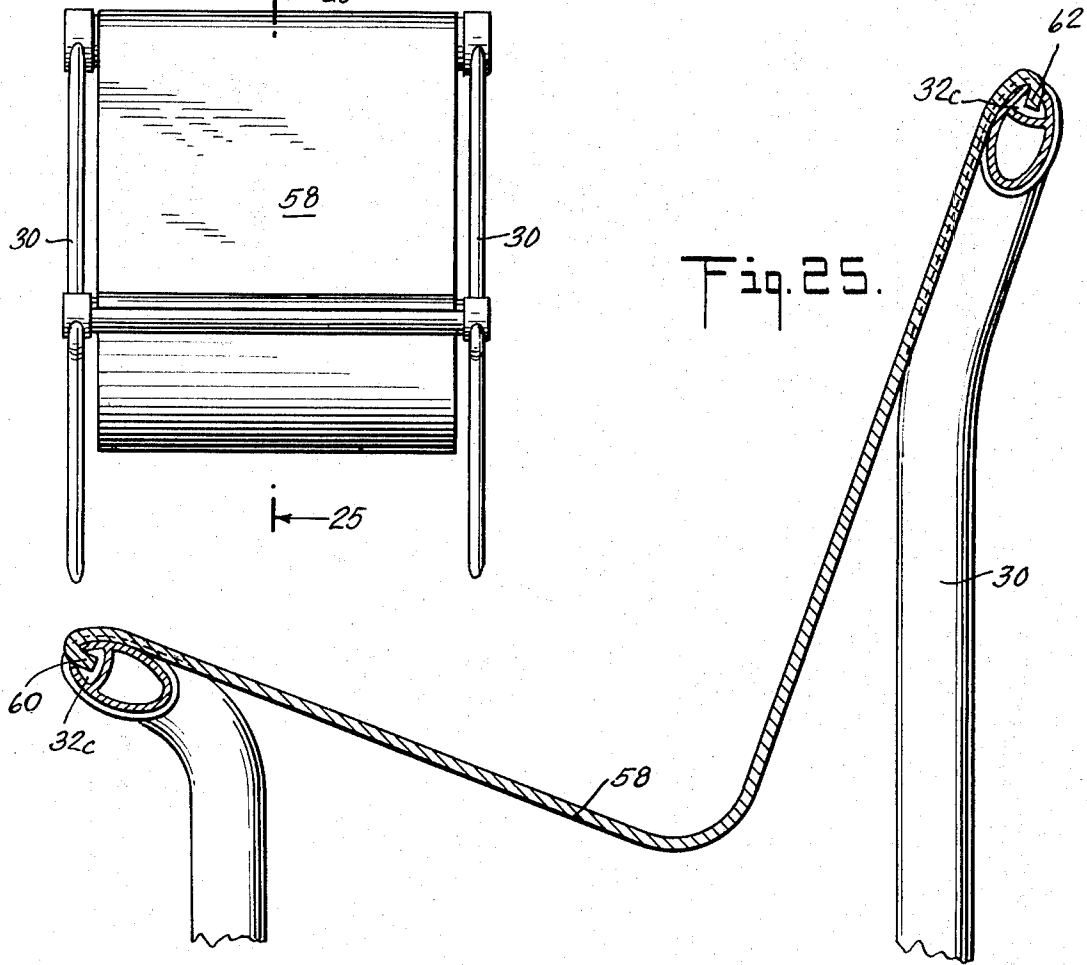


Fig. 26.

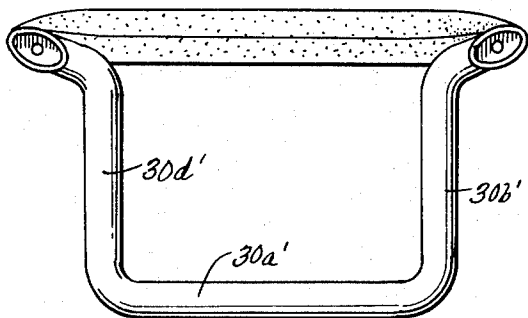
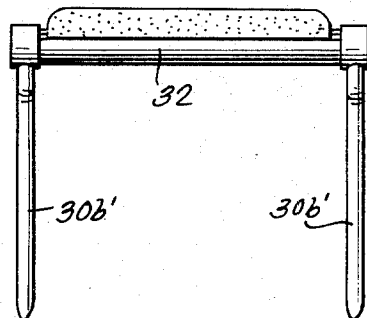
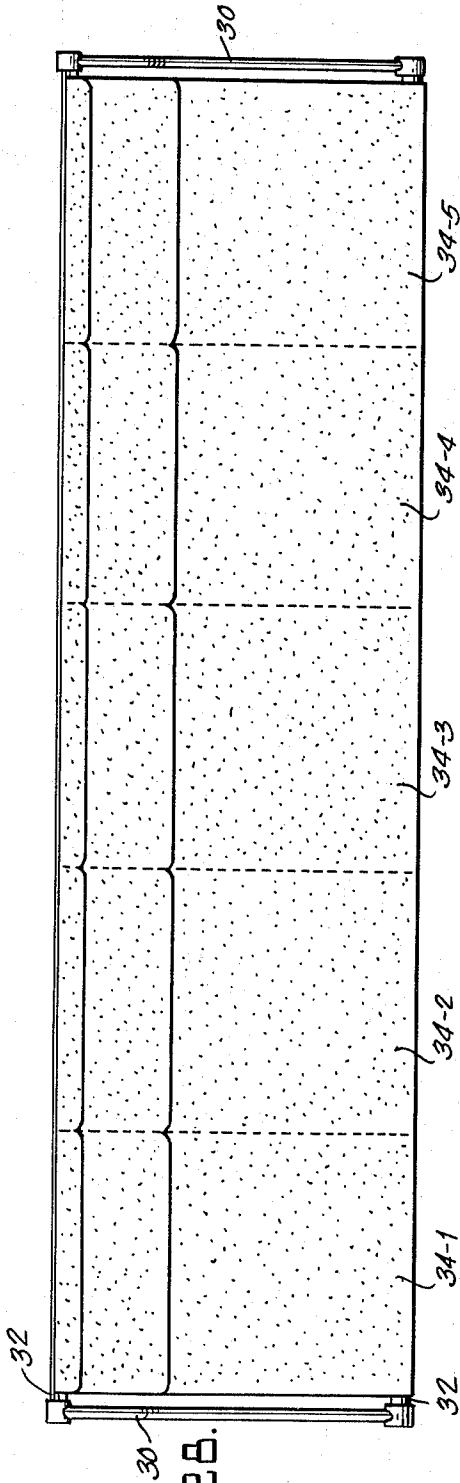


Fig. 27.





SLUNG FURNITURE

BACKGROUND AND BRIEF DESCRIPTION OF THE INVENTION

This invention relates to articles of furniture, and particularly to an article of furniture involving a slung support structure that is essentially hung from front and rear stretchers that join together two side pieces, e.g., to form a chair. The invention is particularly directed to providing an article of furniture which is capable of inexpensive and simple construction and fabrication.

Furniture embodying the invention utilizes two identical side pieces joined together by two identical stretchers, and a slung support structure such as fabric material or rigid or semi-rigid sheet material. The framework involved is accordingly formed from just two basic pieces. The frame pieces are shaped so that ganging of articles of furniture, such as chairs, may be easily achieved, i.e., side-to-side and back-to-back ganging.

An important aspect of the invention involves the providing of a cushion which may be easily fabricated by "two-dimensional" sewing, thereby avoiding the problems involved in conventional upholstery which is "three-dimensional." The upholstery construction embodying the invention involves the sewing of a bag open at both its ends. Each fabric piece at each end is provided with a cord or other enlargement, and the bag is filled with resilient material, such as plastic foam. The two cords or enlargements at each open end of the bag are held within channels provided within the two stretchers of the article of furniture to complete the slung structure. In this fashion the open ends of the bag are closed off by the positioning of the enlargements within the channels and at the same time support is provided for the slinging of the bag. If the bag is stitched transversely across a mid-section thereof, two distinct pockets are provided for receiving resilient material. The two filled pockets provide distinct seat and back support portions of a chair, e.g., without the usual wire or similar structure needed in conventional furniture.

The furniture of this invention also provides a covering of hard stretchers with soft fabric and resilient padding material.

It will be appreciated that furniture embodying the present invention is capable of inexpensive and simple construction. The frame pieces may be extruded from metal such as aluminum. If upholstery is required, it is simply the making of a "bag" as described above. The furniture may be easily assembled. Because of the ease of assembly, the furniture may be stored and shipped in a knockdown condition, and easily erected by unskilled personnel, if desired.

Slung type structure is disclosed in the following references:

Italian Pat. No. 464,032 — June 16, 1951
Great Britain Pat. No. 429,528 — 1935
Great Britain Pat. No. 776,934 — 1957

U.S. Patents		
2,540,823	Heller	Feb. 6, 1951
2,708,960	Shephard	May 24, 1955
3,167,352	Johnson	Jan. 26, 1965
3,399,926	Hehn	Sept. 3, 1968

Knockdown furniture is exemplified by the following references:

U.S. Patents		
3,131,970	McGregor	May 5, 1964
3,348,882	Chassaignac	Oct. 24, 1967
3,223,450	Pollock	Dec. 14, 1965

The invention will be more completely understood by reference to the following detailed description of representative embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1 and 2 are side and front views of a chair embodying the invention.

FIGS. 3 and 4 are sectional views taken along the sections 3—3 and 4—4 of FIGS. 2 and 1.

FIG. 4a is a sectional view similar to FIG. 4 showing alternative structure.

FIG. 5 is an exploded view showing the details of representative structure for joining together stretcher and side piece.

FIG. 6 is a sectional view similar to FIG. 4 showing the details of an alternative coupling-together of stretcher and side piece.

FIG. 7 is an exploded view of the frame pieces utilized in the chair of FIGS. 1 and 2.

FIG. 8 is a perspective, broken-away view showing how the open end of a fabric bag is secured within the channel formed in one of the stretchers.

FIG. 9 is a side view of two chairs ganged together in back-to-back fashion.

FIG. 10 is a top view of the ganging feature shown in FIG. 9, looking in the direction of the arrows 10.

FIG. 11 is a top view of two chairs ganged together in side-by-side fashion.

FIG. 12 is a sectional view taken along the section 12—12 in FIG. 11.

FIGS. 13 to 17 are somewhat schematic views illustrating an upholstery feature embodying the invention.

FIGS. 18, 19 and 20 are views showing different techniques of covering a stretcher with upholstery.

FIGS. 21 and 22 are front and side views of a chair the same as that shown in FIGS. 1 and 2, with the addition of arms to the chair.

FIG. 23 is a perspective view showing the details of the arm structure.

FIG. 24 is a front view of a chair similar to that shown in FIGS. 1 and 2, except that it utilizes a sheet of rigid material rather than a cushion.

FIG. 25 is a sectional view on an enlarged scale of the chair in FIG. 24, taken along the section 25-25.

FIGS. 26 and 27 are side and front views of a bench embodying the invention.

FIG. 28 is a top view of a lounge embodying the invention.

FIG. 29 is a top view of a lounge similar to that of FIG. 28, except that it incorporates curved stretchers.

DETAILED DESCRIPTION

FIGS. 1 and 2 show a chair embodying the invention. The chair includes two identical side pieces 30 joined together by two identical stretchers 32. One stretcher is at the front of the chair and the other stretcher is at the rear of the chair. FIG. 7 is an exploded view showing the two stretchers and side pieces. Each side piece includes a support portion 30a adapted to rest upon a support surface. An upwardly-extending side piece portion 30b extends from the front end of the support portion 30a and terminates in a forwardly projecting portion 30c. A side piece portion 30d extends upwardly from the rear of the support portion 30a, and terminates in a rearwardly and upwardly extending portion 30e.

In the chair of FIGS. 1 and 2 an upholstered seat and back support structure 34 is included. FIG. 3 shows the details of this upholstered support structure. It includes a top fabric piece 34a and a bottom fabric piece 34b. A layer 34c of material such as plastic or canvas used as a tension member is positioned against the bottom fabric piece 34b. The bottom and top fabric pieces 34b and 34a terminate in enlargements 34d and 34e at one end thereof, and in enlargements 34f and 34g at the other end thereof. These enlargements, which may be formed by wrapping the fabric material about a cord, serve to retain the upholstery material in a slung position between the front and rear stretchers, as will be described in more detail below. Resilient material such as plastic foam is positioned between the top and bottom fabric pieces, as designated 34h and 34i in FIG. 3. Stitching 34j serves to separate the upholstery into two distinct portions, i.e., a seat support portion and a back support portion.

As noted in FIGS. 1 and 2, the terminal portions 30c and 30e of each side piece themselves terminate in coupling structure 36 which is used for the coupling together of stretchers and side pieces. FIGS. 4 and 5 show the details of the stretcher-side piece coupling. Each coupling structure 36 includes an indentation 36a which is generally elliptical in shape surrounded by a ridge 36b. This structure is included on the inside and outside surface of each side piece. The end of the stretcher 32 is received within the indentation 36a and against the ridge 36b, as shown in FIG. 4. It will be noted from FIG. 5 that the stretcher 32 is elliptical in section, the elliptical stretcher shape conforming to the elliptical indentation 36a in the side piece. Any sectional shape could be employed. The elliptical shape is pleasing to the eye. What is desired is some shape to prevent rotation of the stretcher.

As shown in FIG. 5, the stretcher 32 includes a web 32a that provides two channels 32b and 32c in the stretcher. Channel 32c constitutes an interior portion of the stretcher, with an access opening through the stretcher wall. Three blocks 38, 40 and 42 are shaped the same as the interior stretcher channel 32b and are adapted to be positioned within the channel as shown in FIG. 4. The blocks 38 and 42 advantageously may be of metal, such as aluminum, while the block 40 may be of resilient material, such as rubber. The blocks include holes 38a, 40a and 42a; the hole 38a is threaded while the other holes are not. A bolt 44 passes through a hole 36c in the coupling portion 36 of the side piece, and is threaded into the threaded block 38. With the stretcher 32 in position, as shown in FIG. 4, with its right hand end within the side piece indentation 36a, the bolt 44 is tightened. The tightening of the bolt moves the block 38 toward the block 42, squeezing the block 40 of rubber, causing it to expand against the interior surface of the stretcher. The engagement of rubber block 40 with the stretcher wall is a tight frictional engagement retaining the stretcher in position against the side piece 30. The construction in FIG. 4 is advantageous, inasmuch as the ends of the stretcher 32 need not be finished off. The projection 36b in the side piece hides the end of the stretcher.

If the finishing off of the ends of the stretchers is no problem, the construction shown in FIG. 4a may be employed for the coupling portion of the side piece. In this case, coupling portion 36' includes projections 36a' on both sides of the side piece. The inside one of these projections (at the left in FIG. 4a) fits inside the stretcher 32, and particularly inside the channel 32b. The stretcher is held against the side piece by the same technique of blocks 38, 40 and 42.

FIG. 6 shows an alternative stretcher-side piece coupling. The side piece is the same as shown in FIG. 4. The stretcher (in this case designated 32') includes a central portion 32d that has a hole 32e therein. The hole 32e is threaded to hold the bolt 44. Tightening the bolt 44 maintains the stretcher against the side piece and within the indentation 36a. The advantage of the coupling arrangement shown in FIG. 4 over that of FIG. 6 is that, in the event the threaded passage 32e becomes stripped, an entirely new stretcher must be provided. If the threaded passage in the block 38 of FIG. 4 becomes stripped, only a new block need be provided.

FIG. 7 is an exploded view of the framework of the chair. In assembling a chair as shown in FIGS. 1 and 2, the upholstery is attached as shown in FIG. 8. FIG. 8 shows the details of attaching the upholstery to the upper stretcher; in this case the cords 34d and 34e are slid into the channel 32c with the fabric pieces 34a and 34b passing out of the channel through the opening in the channel wall. In assembling the chair, typically the upholstery is secured to the front and rear stretchers, these stretchers are then positioned against the side pieces and the side pieces are then secured to the stretchers through the coupling techniques shown in FIGS. 4 to 6. Because of this simple assembly procedure, the furniture may be easily stored or shipped in knockdown fashion, to be assembled easily and speedily as desired.

FIGS. 9 and 10 show the details of ganging two chairs in back-to-back fashion. A ganging member 50 is employed,

which terminates in two hubs 52. The hubs engage the coupling portions 36 of the side pieces on the outer surfaces thereof and are bolted in place. The bolts used for this purpose also secure the stretchers 32 to the side pieces.

FIGS. 11 and 12 show the details of side-by-side ganging of chairs. Because of the construction of the side pieces, with the coupling 36 including indentations 36a on both sides thereof, the side-by-side ganging is easily achieved. As shown in FIG. 12, two stretchers 32 are positioned on both sides of a side piece 36 (the right hand side piece in FIG. 12). Unthreaded blocks 42 may be employed within the left hand stretcher 32, while the arrangement of threaded and unthreaded blocks 38 and 42 may be employed in the right hand stretcher. A long bolt 44' passes through all the blocks and the stretcher 36 and is threaded into the block 38, as explained above in connection with FIG. 4. A long wrench is inserted within the open end of the left hand stretcher 32 to tighten the bolt 44' which causes the two rubber blocks 40 to expand against the two stretchers and to hold the stretchers in place against the side piece 30. This procedure is repeated as many times as is necessary for intermediate side pieces in ganging together chairs, until finally the end side pieces are fastened to the end stretchers, as described above in connection with FIG. 4, for example.

FIGS. 13 to 17 show the details of the upholstery technique utilized in the present invention. These figures should be considered along with FIG. 3 for better understanding. These figures show how the basic fabric "sandwich" is formed. The top fabric piece 34a is conveniently positioned, and the cords 34e and 34g are sewn at the ends thereof, as indicated by stitching 34m. The bottom fabric piece 34b is sewn with the backing layer 34c thereagainst and is stitched at the ends thereof as at 34n so as to contain the cords 34d and 34f. The top and bottom fabric pieces 34a and 34b and tension sheet 34c are positioned in a sandwich, as shown in FIG. 13, which is then stitched along the sides as at 34k. The stitching up to now is all "two dimensional." That is, there is no padding or stuffing that is placed within the "sandwich" and all stitching may be done by machine. The "sandwich" as shown in FIG. 13 is inside out, and is turned right side out, as shown in FIG. 14. FIGS. 15 to 17 show the completed "sandwich," right side out, in which case the side stitching 34k is on the inside of the bag that is formed. As shown by FIGS. 16 and 17, the bag is closed along its sides and open at its ends. If desired, the middle portion of the bag may be stitched as at 34j to form the two distinct pockets which hold resilient material for forming the seat and back of a chair, for example. The foam or other resilient material is placed within the pockets and then the pockets are closed when the fabric is slung between the two stretchers, as described above.

It is appreciated, therefore, that the two-dimensional upholstery technique in connection with the slinging of fabric provides a simple construction and fabrication technique. Indeed the completely upholstered cushion, which includes the foam material therein, involves no further sewing, inasmuch as the bag is closed off at its open ends when the cushion is slung between the stretchers.

The upholstery is easy to clean, as will be seen from FIG. 9. The two-part piece, involving seat and back, is simply snapped upwardly, as shown by dotted lines in the right hand portion of FIG. 9. In the snapped-up position, the crevice adjacent the stitching 34j is easily cleaned; in conventional upholstery, such a crevice is not easily cleaned.

FIGS. 18 to 20 show different techniques of slinging the upholstery. All three techniques involve the positioning of upholstery enlargements or cords within the stretcher channel 32c. FIG. 18 is the same as shown in FIG. 1. In FIG. 19 the stretcher 32 is pivoted 180° with respect to the position shown in FIG. 18, and in this case the fabric covers the stretcher so that the stretcher may not be seen.

In FIG. 20 the stretcher orientation is the same as in FIG. 18. As in FIG. 19, however, the fabric obscures the stretcher from view, as is occasioned by wrapping the fabric around the stretcher.

It should be noted that regardless of stretcher orientation, the sharp feeling of a stretcher is eliminated since fabric and foam material extend at least partially around the stretchers (see FIG. 3, which shows how stretchers are covered by fabric and foam).

FIGS. 21 to 23 show the details of an arm structure 54 to covert the armless chair of FIGS. 1 and 2 to an armchair. The arm structure 54 terminates in hubs 56, which fit within the exterior indentations of the side piece couplings 36. Thus it will be noted that the exterior surfaces of these side piece couplings can be used for the side-to-side ganging of chairs (as described above in connection with FIG. 11), for the back-to-back ganging of chairs (as described above in connection with FIGS. 9 and 10) and for the addition of arms (as just described in connection with FIGS. 21 to 23).

FIGS. 24 and 25 show a chair the same as that of FIGS. 1 and 2, except that a sheet 58 of rigid or semi-rigid material is substituted for the upholstery seat and back support 34. The seat and back support terminates in hook-shaped lips 60 and 62 positioned with channels 32c. A single piece of fabric could also be employed as the seat and back.

FIGS. 26 and 27 show a bench in accordance with the invention. The bench involves side pieces which include a support portion 30a', and upwardly-extending portions 30b' and 30d'. The stretcher construction and coupling to side pieces are the same as previously described, as is the attachment of a body support structure, in this case an upholstered seating pad. The pad is slung between stretchers exactly the same as described above in connection with the chairs. A piece of rigid or semi-rigid material could also be employed, as well as a single piece of fabric, if desired.

FIG. 28 shows a lounge in accordance with the invention. The lounge is essentially the same as the chair in FIGS. 1 and 2, except that the stretchers 32 are much longer. In this case the chair is segmented (by stitching transverse to the stretchers) into separate seat and back support sections 34-1, 34-2, 34-3, 34-4 and 34-5. In this case the upholstery technique would be the same as that described above, except that the transverse stitching just described would be completed in order to form the separate seat and back sections.

FIG. 29 shows a lounge the same as that shown in FIG. 28, except that in this case the stretchers 32 are curved or arcuate in shape. Typically the curving of the stretchers is completed at the time of assembly of the lounge. In other words, straight stretchers may be curved by the person assembling the lounge. The front stretcher would be somewhat shorter than the rear stretcher, because of the curvature, and the upholstery in this case is changed because of the curvature. The upholstery construction technique is identical to that described above, except for the lengths of the various edges of the fabric, in order to accommodate the arcuate shape.

SUMMARY

An article of furniture embodying the invention utilizes a slung support structure which is maintained in place by a channel in each of two stretchers, the access to each channel being through an opening in the stretcher wall. If upholstery is employed, the sewing technique is a simple two-dimensional one involving a bag type construction, the open ends of which are closed when the bag is slung between the two stretchers. By stitching the bag transversely across its mid-portion so that two distinct pockets are formed, the slung structure, in the case of a chair, nonetheless provides the distinct seat and back

support portions of a conventional chair, without the requirement of the usual rigid structures encountered in conventional upholstery.

The invention should be taken to be defined by the following claims.

We claim:

1. A chair or like article of furniture, comprising two side pieces joined together by front and rear stretchers, an elongated channel in each stretcher, each channel being defined by an interior portion of the stretcher and an access opening to the channel through the stretcher wall, and a body support structure comprising resilient material covered by top and bottom fabric pieces, the fabric pieces comprising a bag open at front and rear ends thereof, enlargements on the top and bottom fabric pieces at each of the open ends of the bag, the enlargements being secured in the channels of the corresponding stretchers to close the open ends of the bag and to provide support for slinging the body support structure between the front and rear stretchers.

2. An article of furniture according to claim 1, in which the bag is sewn transversely thereacross to form a plurality of pockets, the resilient material being in portions each within a pocket of the bag, one pocket comprising a seat support and another pocket comprising a back support.

3. An article of furniture according to claim 1, in which the bag defines a seat and back support structure which is sewn along a plurality of lines extending between the front and rear stretchers to provide a plurality of individual seat and back support units.

4. An article of furniture according to claim 1, in which the side pieces are identical to each other and the stretchers are identical to each other.

5. An article of furniture according to claim 1, in which each of the two side pieces is shaped on inside portions thereof to receive the corresponding ends of the front and rear stretchers.

6. An article of furniture according to claim 4, in which each of the side pieces includes portions on the outside surface thereof shaped to engage arm structure or to permit ganging of articles of furniture.

7. A chair or like article of furniture, comprising two side pieces joined together by front and rear stretchers, a bag containing a plurality of distinct pockets therein, resilient material contained within each pocket, the front edge structure of a front one of the pockets being held by the front stretcher, the rear edge structure of a rear one of the pockets being held by the rear stretcher, the two side edge structures of all pockets being unattached to either the side pieces or the stretchers, and the bag being otherwise unsupported so as to be slung between the front and rear stretchers with one of the pockets defining a seat support and another of the pockets defining a back support.

8. A chair or like article of furniture, comprising two side pieces joined together by front and rear stretchers, an elongated channel in each stretcher, each channel being defined by an interior portion of the stretcher and an access opening to the channel through the stretcher wall, and a body support structure comprising a sheet of at least semi-rigid material having front and rear hook-shaped lips that are positioned within the stretcher channels to provide support for slinging the body support structure between the front and rear stretchers, the two side edges of the sheet of material being unattached to either the side pieces or the stretchers.

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