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MEANS FOR ATTACHING WEB STRIPS TO FURNITURE FRAMES

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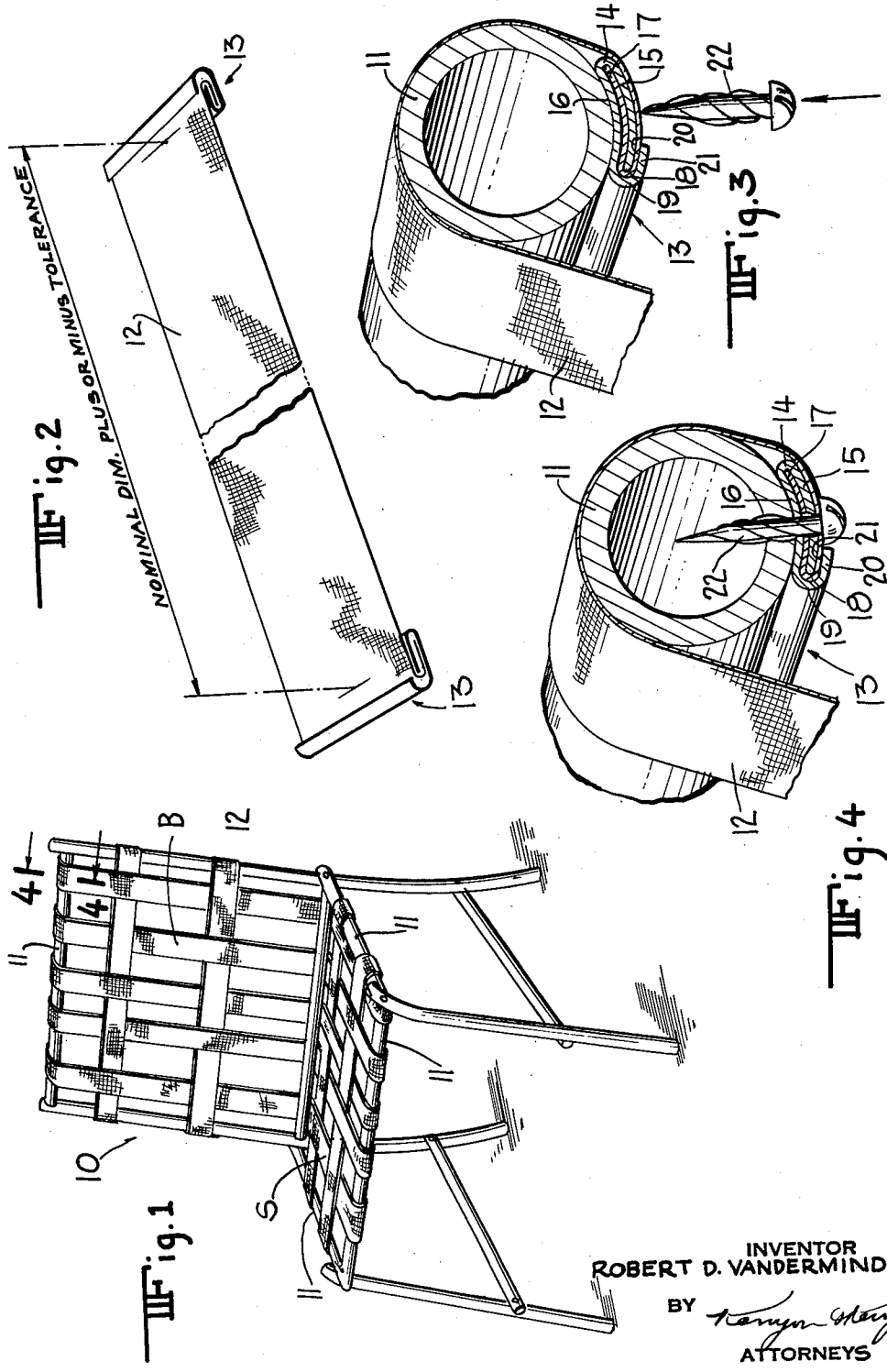


Fig. 2

Fig. 3

Fig. 4

Fig. 1

INVENTOR
ROBERT D. VANDERMINDEN
BY Kenyon & Kenyon
ATTORNEYS

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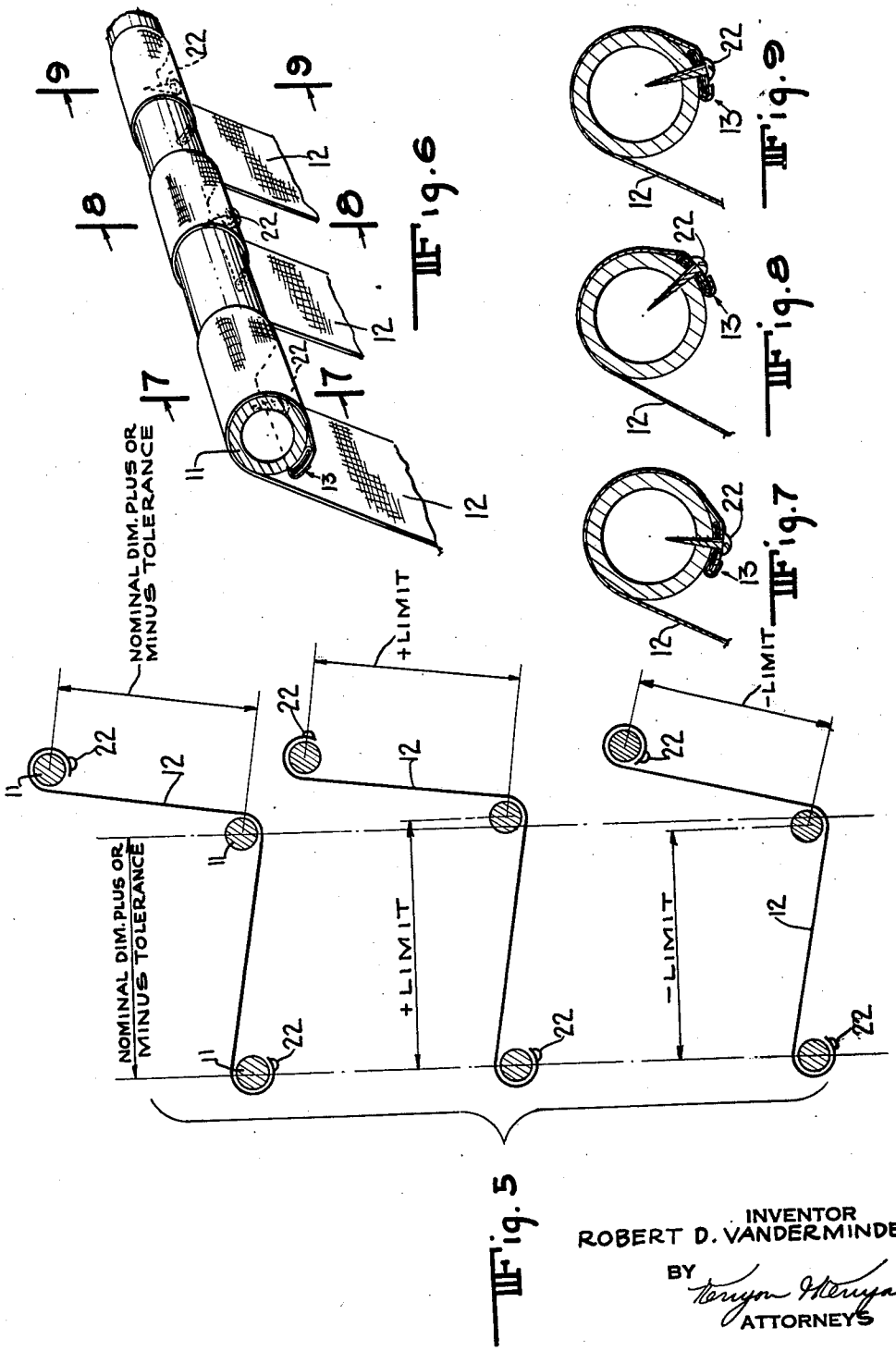


Fig. 4

Fig. 6

Fig. 8

Fig. 7

Fig. 9

Fig. 5

INVENTOR
ROBERT D. VANDERMINDEN
BY Kenyon & Kenyon
ATTORNEYS

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MEANS FOR ATTACHING WEB STRIPS TO FURNITURE FRAMES

Robert D. Vanderminden, Granville, N.Y., assignor to The Telescope Folding Furniture Co., Inc., Granville, N.Y., a corporation of New York

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This invention relates to furniture and more particularly to furniture utilizing strips stretched between seat and back frame portions and to means for effecting rapid attachment of the webbing to the frame portions.

In furniture wherein web strips are utilized to span frame parts as for example to form seats or back rests of a chair, it is essential to stretch all the web strips uniformly taut to maintain substantially uniform tension across the entire width of the web strip and also, to mount the web strips to the frames rapidly. In the past, members have been utilized, these members being adapted to be secured to the strip ends and having hooks or prepunched holes through which nails or screws were applied, these in turn being fastened to the frame parts also equipped with eyelets or prepunched nail or screw holes. When such expedients have been utilized, lack of uniformity of strip tautness has proved a primary problem because of variations in length and stretch of individual pieces of the web strips. With reliance upon the known arrangements, the individual web strips frequently in finally fastened condition are found to be either too loose or too tight. This is, of course, objectionable in a finished commercial product.

Moreover, prepunching as heretofore practiced has introduced added unnecessary cost to the manufacturing procedure with detrimental rather than beneficial results and also has reduced the speed of assembly unnecessarily.

Objects and features of the present invention are the provision of novel, simple means for attaching web strips to frame parts to produce uniform tautness and in which the necessity for prepunching of holes in the attaching means or frame parts is eliminated.

Additional objects and features of the invention are the provision of cheap and easily made means for rapidly applying web strips tc frame parts with uniform tautness.

Other objects and features of the invention will become apparent from the following specification and the accompanying drawings forming a part hereof, wherein:

FIGURE 1 is a perspective view of a chair embodying the invention;

FIGURE 2 is a perspective view of a web strip or piece of webbing intended to span chair frame parts and to whose opposite ends clips embodying the invention have been applied;

FIGURE 3 is a fragmentary perspective view illustrating the manner of attachment of one of the clip bearing ends of a web strip to a chair frame part;

FIGURE 4 is a similar view seen along the plane of line 4—4 of FIGURE 1 illustrating the complete attachment of a clip bearing web strip end to the frame part;

FIGURE 5 illustrates diagrammatically conditions which may occur in the attachment between frame parts of successive lengths of web strips equipped with clips of this invention, the upper most web strip showing relative web clip positions on one of the frame parts when the latter has substantially its nominal spacing dimensions, the intermediate web strip showing the web clip positions on said one of the frame part when spacing between frame parts is at the +limit of tolerance, and the lowermost web strip showing the web clip position on said one of the frame parts when spacing between frame parts is at the —limit of tolerance;

FIGURE 6 illustrates various positions web clips may assume relative to the frame part to which they are attached in order to secure uniformity of tautness of all the web strips; and

FIGURES 7, 8 and 9 respectively are sections taken along lines 7—7, 8—8 and 9—9 of FIGURE 6.

Referring to the drawing and first to FIGURE 1, the reference character 10 illustrates a chair or other article of furniture which comprises frame parts 11 preferably of tubular metal such as aluminum defining the outline of the chair including a seat portion S and a back portion B. Web strips 12 are stretched uniformly taut in the seat and back portions between corresponding tubular frame parts 11 and are secured to the latter as will now be described.

Each web strip 12 of suitable material such as "Saran" or other woven plastic or natural material has selected width and length. A clip 13 is secured to each end of the web strip 12. The clips 13 are each preferably of relatively light guage aluminum or other suitable metal. Each clip is dimensioned to span the width of the web strip 12 to an end of which it is secured. Each clip includes a substantially U-shaped portion defined by the bend 14 and the adjacent leg 15 and longer leg 16 between which an end lap 17 of a web strip is inserted. The web strip is reversely bent at 18 around the outermost face of the leg 15. The longer leg 16 of the clip is then bent at 19 around the bent portion 18 of the web strip, its portion 20 then overlapping a portion of leg 15 and a portion 21 of the strip 13. When the legs 15 and 16, and the overlapping portion 20 of the clip are pressed together their frictional engagement of the embraced portions 17 and 21 of the web strip 12 prevents separation of the assembled clip and web strip. In pressing the lapped portions of the web strip and clip together, transverse curvature of the surfaces of the clip is effected as seen in FIGURES 3 and 4 which is generally complemental to the curved surface of the frame part to which the clips 13 are to be applied. This transverse curvature also improves frictional contact between adjacent clip and enfolded web strip parts and aids in preventing their separation.

Each web strip 12 has a clip 13 attached to each end. In securing these clip bearing web strips 12 to the spaced frame parts 11 one of the clip bearing ends is applied against a surface of one of the frame parts 11 as seen in FIGURE 3. Then a screw type nail 22 is driven through the web strip and unperforated clip legs 15 and 16 and through the unperforated wall of the tubular frame part 11. The web strip is then spanned across to the other corresponding frame part and the clip on the other end of said web strip positioned on the second frame part. Desired tension is now applied to the strip by drawing the latter clip as far around the second frame part as needed. Then while maintaining this adjusted tension or tautness of the web strip, a screw type nail is driven through the unperforated second clip and web strip at its second end and into the second unperforated frame part 11 again as illustrated in FIGURES 6, 7, 8 and 9.

It is to be noted that no preformed holes or perforations are provided in either of the clips or the frame parts to which they are attached. The guage of the metal forming each clip 13 is such that a screw type nail 22 may readily be driven through a pair of adjoining lapped layers thereof and through a wall of the tubular frame part 11 to securely fasten the clip to the said part. Since no perforations or preformed holes are provided, each clip is adjustably positionable circumferentially on the frame part to which it is to be attached so that uniform tautness of a web strip spanning frame parts is achieved. Thus as seen in FIGURES 6, 7, 8 and 9, variations in length of individual strips does not preclude uniformity in tautness, it being merely necessary to adjust the posi-

tion of the clip of each individual strip on the surface of the frame part to which it is to be attached at that location which provides like tautness for all strips. Thus the three clips **13** of FIGURES 5, 6, 7, 8 and 9 lie in different respective angular positions on the surface of the frame part **11** to which they are attached by their driven screw nails **22**. All of the strips **12**, however, have substantially like tautness. This would not be possible if perforations or preformed holes were provided in the frame part at uniform locations. Much greater speed of assembly of chairs with uniformly taut web strips is thus achieved with the practice of this invention and expense of assembly likewise is reduced by elimination of the necessity for predrilling or preforming any holes in any of the clips or frame parts for effective assembly of such web strips and frame parts.

Although a specific embodiment of the invention has been disclosed, variations in structural detail within the scope of the appended claims are possible and are contemplated. There is no intention, therefore, of limitation to the exact disclosure herein made.

What is claimed is:

1. In furniture including spaced apart frame parts spanned by a plurality of individual web strips all having substantially uniform tautness, means for attaching such of said strips independently to the spaced apart frame parts and for effecting substantially uniform tautness during such attachment comprising a separate identical attaching clip secured to each end of each of said strip, each clip comprising a piece of sheet metal whose length approximates the width of the web strip to which it is secured, said piece in its width being bent into substantially U-shaped configuration with a shorter and a longer leg between which an end lap of a web strip is interposed, the strip being reversely bent outwardly over the shorter leg and the longer leg having a portion which is bent to overlap a portion of the shorter leg and a portion of the reversely bent strip, each said clip thus serving to embrace and retain an end of the web strip material embraced thereby, screw type nail means driven through the clips and strips embraced thereby without penetrating the portions of the longer legs overlapping the shorter legs of the clips at one of the ends of each of said strips into one of the frame parts, and screw type nail means driven through the clips and strips embraced thereby without penetrating the portions of the longer legs overlapping the shorter legs of the clips at the other ends of each of said strips and into the other of said frame parts, the separate web strips all being adjusted to substantially uniform tautness between the frame parts.

2. That improvement in the method of attaching a plurality of web strips between a pair of spaced apart frame parts with substantially uniform tautness comprising providing a plurality of web strips of predetermined length and width, applying an independent clip to each end of each said strip, each clip comprising an imperforate piece of sheet metal whose length approximates the width of the strip to which it is applied, said clip in its width being bent into substantially U-shaped configuration with a longer and a shorter leg between which an end lap of a web strip is interposed, the strip being reversely bent outwardly over the shorter leg and the longer leg having a portion which is bent to overlap a portion of the shorter leg and a portion of the reversely bent strip, each said clip thus serving to embrace and retain an end of a web strip, then without penetrating the portion of the longer leg overlapping the shorter leg driving a screw type nail fastener through the clip and strip at one clip bearing end of each strip into one of the frame parts thus securing it thereto, spanning the frame parts with the so secured web strips and applying the other clip bearing end of each strip to the other of the frame parts, adjusting the tautness of each spanned strip independently, and while maintaining such independently adjusted tautness and without penetrating the portion of its longer leg overlapping its shorter leg driving a screw type nail fastener through the clip and strip at said other clip bearing end of the particularly tautened strip into the second frame part.

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