March 6, 1956 E. H. GRUBER 2,737,232

BACK AND SEAT CONSTRUCTION FOR CHAIRS AND THE LIKE

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FIG. 7

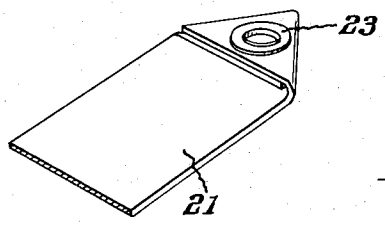

FIG. 1

INVENTOR.
Eli H. Gruber,
BY Paul & Paul
ATTORNEYS.

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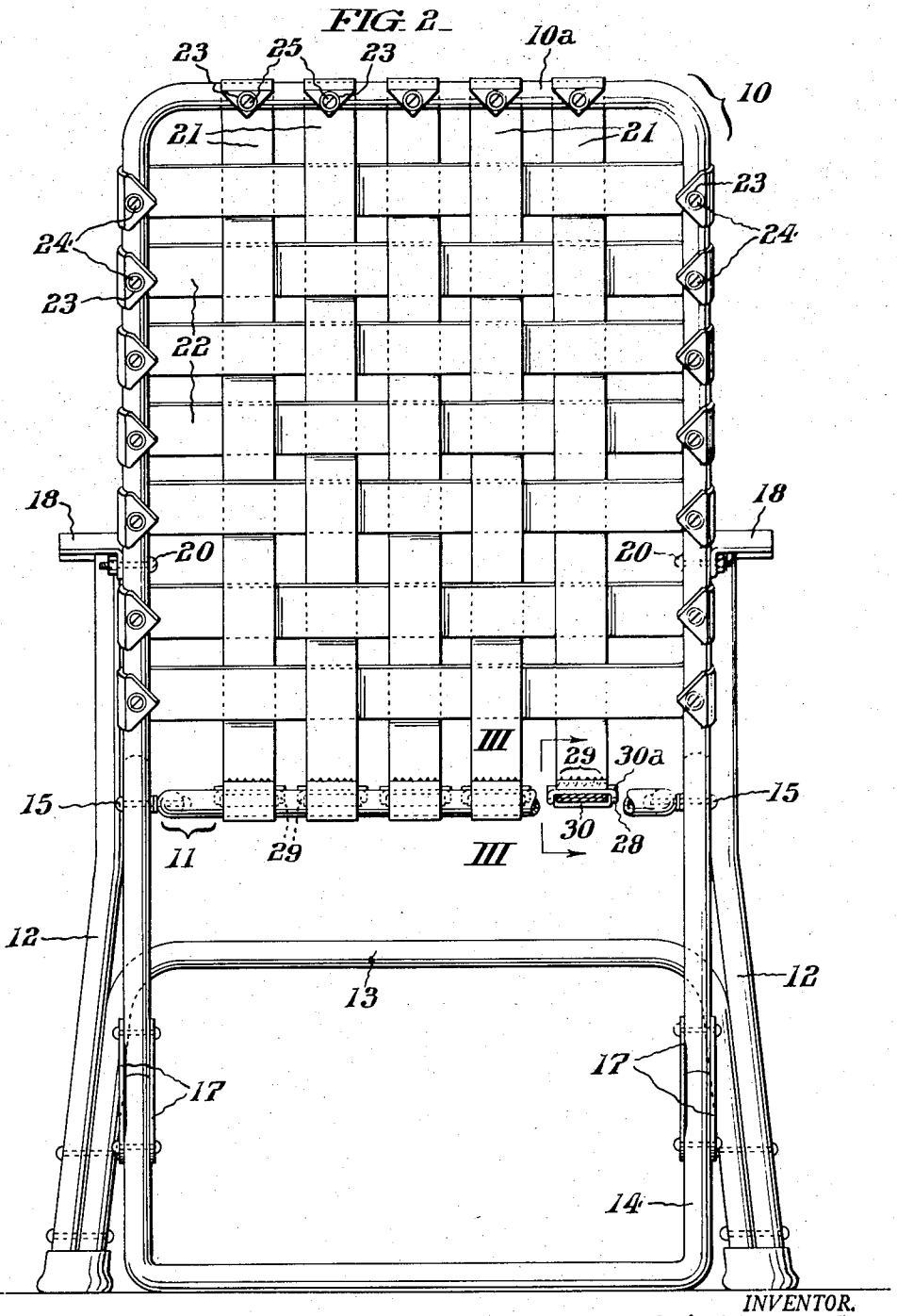
FIG. 2



INVENTOR.
Eli H. Gruber,
BY Paul & Paul
ATTORNEYS.

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FIG. 3

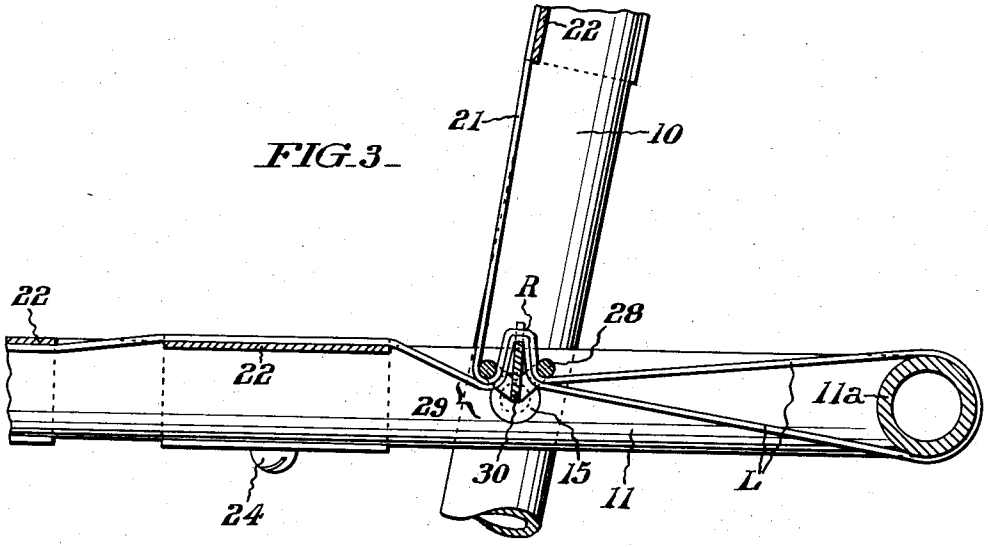


FIG. 8

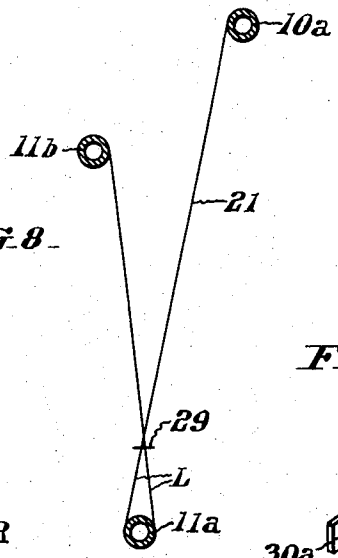


FIG. 6

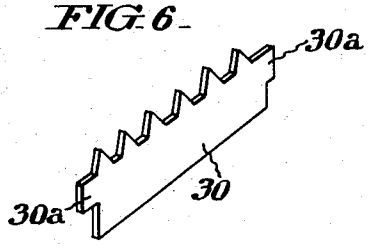


FIG. 4

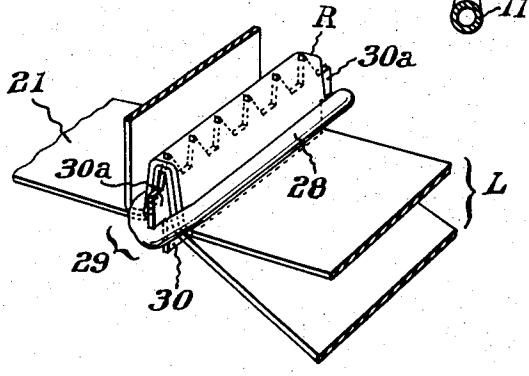
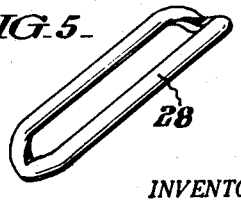


FIG. 5



INVENTOR.
Eli H. Gruber,
BY Paul & Paul
ATTORNEYS.

United States Patent Office

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BACK AND SEAT CONSTRUCTION FOR CHAIRS AND THE LIKE

Eli H. Gruber, Malvern, Pa.

Application November 4, 1952, Serial No. 318,550

2 Claims. (Cl. 155—187)

This invention relates to chairs or the like. More specifically it is concerned with chairs or the like of a type having open back and seat frames, and wherein flexible sheet material or webbing only is used as the fill in for said frames to form the back rests and seats.

My invention has for its chief aim to provide in connection with a chair or the like of the kind to an improved means and method whereby the sheet material or the webbing is incorporated and secured in such a way that the body of the seated user is yieldingly supported with avoidance of contact with any solid or rigid portion of the framing and the user thereby assured of the utmost ease and comfort.

Other objects and attendant advantages will appear from the following detailed description of the drawings, wherein:

Fig. 1 is a view in side elevation of a chair embodying my invention.

Fig. 2 shows the chair in rear elevation.

Fig. 3 is a fragmentary view in section taken as indicated by the angled arrows III—III in Fig. 2, and drawn to a larger scale.

Fig. 4 is a fragmentary view in perspective showing how a loop formed in the back and seat fabric is clamped by a clasp such as hereinbefore mentioned.

Figs. 5 and 6 are perspective views of the component parts of the clasp.

Fig. 7 is a fragmentary view in perspective showing how the ends of the strip material employed for the back and seat of the chair is finished off in accordance with my invention.

Fig. 8 is a diagrammatic view showing how the back and seat material allows folding of the chair without becoming slack or sagging.

The chair herein illustrated for convenience of exemplifying my invention is of the folding deck or lawn type having an open invert U-shaped back frame **10**, an open rectangular seat frame **11**, frontal legs **12** which are rigidly united by an invert U-shaped brace member **13**, and a U-shaped truss frame **14** which serves the purposes of rear legs—all of these parts being shown as fashioned from metallic tubing. Seat frame **11** is pivotally connected to back frame **10** by means of rivets **15** which pass through the side bars of the back frame and through the side bars of the seat frame somewhat forward of the rear bar **11***a* of the latter frame as shown in Figs. 1 and 3. The legs **12** are pivotally connected, by screw bolts **16**, to seat frame **11** adjacent the front bar **11***b*, of the latter and extend above the pivotal connections **16**. With the chair set up as in Fig. 1, the ends of the side bars of back frame **10** rest upon the side bars of truss frame **14** which latter is pivotally connected to seat frame **11** and the front legs **12** by the bolts **16**. Adjacent their lower ends, the side bars of back frame **10** are connected to the corresponding portions of the truss member **14** by links **17**. The arm rests **18** are fashioned from angle bar stock, each being pivotally connected at one end to the top of the corresponding leg **12** by a rivet **19**, and at its other end to the corresponding side bar of back frame **10** by a screw bolt **20**. This interconnection of the various parts makes possible compact folding or collapsing of the chair in a well known way which need not be dwelt upon herein. The back and seat proper for the chair are formed in this instance by interlaced longitudinal and transverse webbing or tape strips **21** and **22** of flexible material.

The steps followed in accordance with my invention in preparing the webbing strips **21**, **22** and applying them to the chair framing are as follows:

The webbing strips **21** and **22** are cut to the required lengths after which their opposite ends may be diagonally tuck folded to point configuration and the folds clinched by grommets **23** as shown in Fig. 7. The transverse strips **22** are first applied by lapping their opposite ends rearwardly and downwardly over the side bars of the back frame **10** and of the seat frame **11** respectively and secured in suitably spaced relation to said bars by means of screws **24** passed through the grommets and into said bars. With this accomplished, the ends of the longitudinal strips **21** are secured in similarly spaced relation to the top bar **10***a* of back frame **10** in a like manner by means of screws **25**, and then interlace them with the transverse strips on the back frame. The still free ends of the longitudinal strips **21** are next looped horizontally over and under the rear cross bar **11***a* of seat frame to form loops L in said bars. The sides of the loop L thus formed in each strip **21** are next brought together and a retroversion is made in them as at R in Fig. 4, and said retroversion passed upward through the slotted component **28** (separately illustrated in Fig. 5) of a clasp **29**. The toothed bar component **30** (separately illustrated in Fig. 6) of clasp **29** is thereupon thrust through the retroversion R above the slotted component **28**, and the loose end of the strip **21** pulled tight. As a result, the bar **28** component of clasp **29** is forced downward until its projecting shouldered ends **30***a* bear upon the ends of the slotted component **28**, with incidental upward penetration of the fold of retroversion R of the strip by the teeth of said bar component. The still free ends of the longitudinal strips **21** are next interlaced with the transverse strips **22** of the seat, then drawn forward and finally lapped over the front cross bar **11***b* of seat frame **11** and made fast by screws **32**. It is to be noted that the clasps **29** are so placed that the loops L in the longitudinal strips **21** are clamped crosswise along a line substantially coincident with the pivot axis between the back and seat frames **10** and **11**. Accordingly, the longitudinal strips **21** will remain taut as the seat frame **11** is swung upward relative to the back frame **10** in folding or collapsing the chair as shown in the diagram of Fig. 8.

As an alternative, a single long clasp may be provided in place of the individual ones shown in Fig. 2 to serve for all of the longitudinal webbing strips **21** as will be readily understood.

As another alternative, instead of interlaced webbing for the back and seat proper, I may employ a single full width sheet of flexible material or fabric and provide a single clasp like the one illustrated and described but necessarily longer, with attainment of advantages corresponding in all respects to those hereinbefore pointed out.

It is to be understood that my invention is not to be considered as restricted to a folding chair such as herein illustrated and described by way of example since, by suitable modifications within the scope of the appended claims, it is equally well adaptable, without sacrifice of any of the advantages hereinbefore pointed out, to chairs or the like in which the back is adjustable relative to the seat or even to chairs having non-adjustable backs, where flexible sheeting or webbing is solely used for the back and seat proper.

Having thus described my invention, I claim:

1. In a folding chair or the like, an open seat frame; an open back frame having side bars pivotally connected to side bars of the seat frame somewhat forward of a rear cross bar of the seat frame; a tensioned strip of flat flexible sheet material looped about the rear cross bar of the seat frame with one end thereof secured to an upper cross bar of the back frame and the other end thereof secured to a front bar of the seat frame; and clasp means for clamping together the sides of the loop in the strip disposed substantially in the axis of the pivotal connection between the two frames, comprising an elongate longitudinally slotted component through the slot of which a retroversion formed upon bringing together the sides of the loop of the strip is upwardly passed, and a cooperative bar element lodged within the retroversion of the strip, said bar having stop shoulders at opposite ends for engaging downwardly upon opposite ends of the slotted component, and teeth along its top edge for engaging upwardly into the fold of the retroversion in the strip.

2. In a folding chair or the like, an open seat frame; an open back frame having side bars pivotally connected to side bars of the seat frame somewhat forward of a rear cross bar of the seat frame; a plurality of transversely-arranged longitudinally-extending tensioned strips of flat flexible sheet material looped about a rear cross bar of the seat-frame with one end thereof secured to a top cross bar of the back frame and the other end secured to a front cross bar of the seat frame; and individual clasp means for clamping together the sides of the loops disposed substantially in the axis of the pivotal connection between the two frames each such means comprising an elongate longitudinally slotted component through the slot of which a retroversion formed upon bringing the sides of the loop in the strip into contact with each other is passed upwardly and a cooperative bar element lodged within the retroversion of the loop, said bar having stop shoulders at opposite ends for engaging downwardly upon opposite ends of the slotted component and teeth along its top edge for engaging upwardly into the fold of the retroversion in the strip.

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