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BACK REST SUPPORTING STRUCTURE FOR CHAIRS

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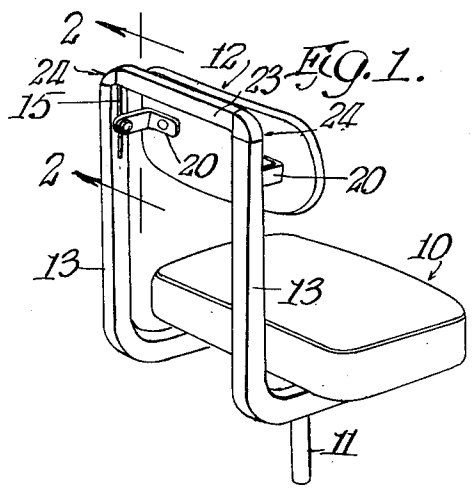


FIG. 1.

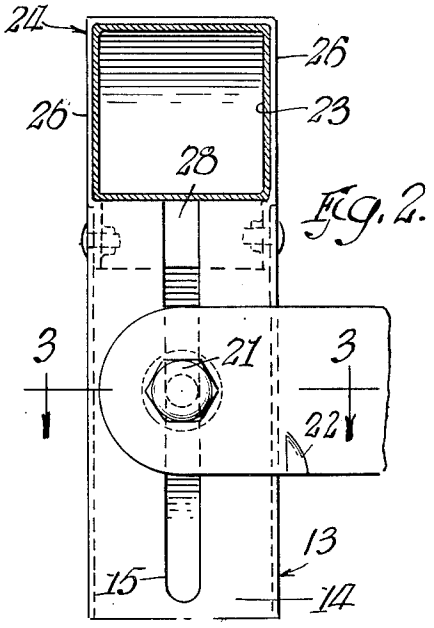


FIG. 2.

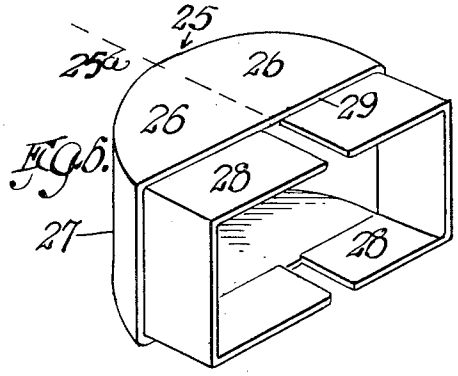


FIG. 6.

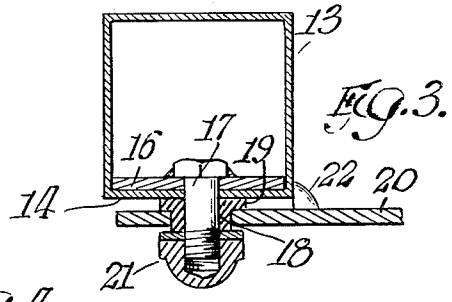


FIG. 3.

FIG. 4.

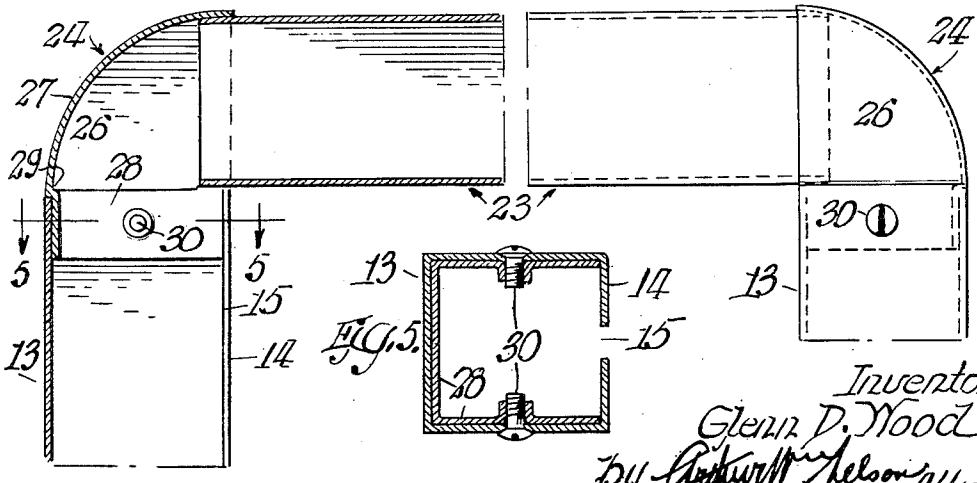


FIG. 5.

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BACK REST SUPPORTING STRUCTURE FOR CHAIRS

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5 Claims. (Cl. 155—156)

This invention relates to improvements in back rest supporting structures for chairs and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The invention is more particularly concerned with structures of this kind wherein the back rest is disposed upon the upper end of a pair of connected laterally spaced uprights, such as shown in the Fields and Wood Patent 2,345,926 of April 4, 1944.

One of the objects of the present invention is to provide in a structure of this kind, simple and efficient means for attaching the back rest to the supporting upright members whereby the back rest is not only capable of a limited forward and rearward rocking movement thereon, but can also be raised or lowered relative to the supporting uprights to dispose the back rest in the desired elevation relative to the seat.

Another object of the invention is to provide a structure of this kind wherein it is practical to make the supporting uprights of metallic tubing and wherein the back rest supporting arms are so attached to the uprights, by means partly inside and partly outside the same, that the back rest may be quickly adjusted as to height and positively locked in the adjusted position.

The above mentioned objects of the invention, as well as others, together with the advantages thereof will more fully appear as the specification proceeds.

In the drawing:

Fig. 1 is a perspective view of a back rest supporting structure for chairs, embodying the preferred form of the invention.

Fig. 2 is a detail vertical sectional view through parts of the structure as taken on the line 2—2 and on a scale enlarged over that of Fig. 1.

Fig. 3 is a detail horizontal sectional view through a part of the structure as taken on the line 3—3 of Fig. 2.

Fig. 4 is a view partly in elevation and partly in section of the upper ends of the back rest supporting members and the associated connecting member and illustrates more particularly the manner in which the ends of said members are operatively connected together by corner fittings described in more detail later.

Fig. 5 is a horizontal detail sectional view as taken on the line 5—5 of Fig. 4.

Fig. 6 is a perspective view of a sheet metal stamping which, when cut transversely, provides a pair of counterpart corner fittings by which the upper ends of the back rest supporting members and the associated connecting bridge are joined together.

Referring now in detail to that embodiment of the invention illustrated in the drawings, **10** indicates the seat of a chair which, for examle, may be mounted on the upper end of a spindle **11**, the lower end of which may be mounted in a conventional manner in a supporting base, not shown.

12 indicates a back rest associated with the seat and which is mounted on the upper ends of a pair of laterally spaced uprights **13** disposed at the back of the seat. These uprights are preferably made of square metallic tubing and in the upper end of those walls **14** of both uprights, which face each other, are longitudinal slots **15** that open through the top edge of the associated wall. Engaged with the inner surfaces of the parts of each wall having a slot **15** therein is a slide **16** in the form of a square piece of metal of a width approximating the inside width between the walls. Fixed to each slide is a stud **17** which

extends outwardly through the slot in the associated wall **14**, the free end of each stud being threaded. Journalled on each stud, outside the associated upright, is a sleeve **18** having an inner end radial shoulder **19** that engages the associated wall **14** at opposite sides of the slot **15** therein.

The back rest **12** carries a pair of rearwardly extending relatively short supporting arms **20—20** spaced apart laterally a distance which approximates the distance between the walls **14** of the spaced uprights. The rear ends of said arms are journalled on the sleeves **18** and are spaced from the adjacent wall **14** by means of the shoulder **19** on each sleeve. The sleeves each have an axial length, slightly more than the thickness of the associated arm **20** and on the threaded end of each stud is located a combined washer and cap nut assembly **21**. When the assembly is drawn up tight it engages the end of the associated sleeve and while it prevents displacement of the arm from the sleeve it does not bind against the arm to prevent rocking movement on the sleeve. Also, when the washer and nut assembly is drawn up tight, it acts through the stud to draw the slide into clamping engagement with the wall **14** of the associated upright and this holds the stud in that position to which it was adjusted longitudinally of the associated upright. At least one of the back rest supporting arms **20** is provided with an outwardly punched shoulder **22**, so disposed in the length of the arms as to be engageable with the front of the associated upright to limit the downward rocking movement of the back rest about the axis of the studs.

Loosening the washer and nut assemblies **21** releases the clamping action from the studs **17** so that they may be adjusted into the desired position longitudinally of the associated slots **15**. By tightening the assemblies, the clamping action is restored so as to hold the studs in the adjusted position.

The top ends of the upright are connected together by a bridge member **23** in connection with a pair of corner fittings **24—24**, the bridge member preferably being made of square metallic tubing.

In making up the corner fittings, they are preferably made in counterpart pairs, each of which are thereafter separated into the two individual corner fittings. In so producing the corner pieces each counterpart pair is made of a die formed stamping **25** such as appears in perspective in Fig. 6, which is then cut transversely along the dotted line **25***a* to form two counterpart corner fittings **24**. Each corner piece includes substantially triangularly shaped sides **26—26** with a rounded outside wall **27**, the side and outside walls having inwardly offset extensions **28** connected thereto by a shoulder **29**. These extensions are disposed to have a telescopic fit within the upper end of an associated upright **13** with the top edge of the upright abutting the shoulder **29**. Screws **30** are passed through the front and rear walls of each upright, at their upper ends, and are threaded into flanged openings in opposite portions of the extensions **28**.

The bridge member **23** is also made of square tubing of such a cross sectional area as to fit within the open sides of each fitting, and said ends are so fitted and then welded therein before the extensions **28** are telescoped into the open top ends of the uprights and secured thereto by the screws **30** as heretofore mentioned. When the parts have been thus assembled the end portions of the bottom wall of the bridge member rests upon the top edges of the wall of the uprights having the slots **15** therein and they thus close off the top ends of the slots in said walls of the uprights. The bridge member **23** is so disposed as to act as a stop for the upward rocking movement of the back rest.

The corner fittings provide a strong rigid connection between the associated ends of the bridge member and uprights respectively and provides a smooth corner surface therefor.

I claim as my invention:

1. In a back rest supporting structure for chairs, laterally spaced tubular uprights, each including a part at the upper end thereof having a longitudinal slot said part having the slot therein comprising a wall with a face portion which confronts the face portion of the other up-

right, a slide engaged with the inner face of said part of each upright, a stud carried by said slide and extending through the associated slot, a sleeve on each stud and having a radial end shoulder engaged with the adjacent surface of the associated part of an upright, a back rest, supporting arms on said back rest, one journalled on each sleeve and engaged with the shoulder thereof, said sleeve having an axial length greater than the thickness of an arm, and a member threaded upon the end portion of each stud and engaged with the exposed end of the sleeve thereon, for holding the arm on said sleeve against displacement and for clamping each slide and stud to the associated part of an upright.

2. In a back rest supporting structure for chairs, laterally spaced uprights each being tubular at the upper end and in which end is a longitudinal slot, a slide in the upper end of each upright, a stud carried by said slide and extending out through the associated slot, a sleeve on each stud and having a radial end shoulder engaged with the outer surface of the upper end of the associated upright, a back rest, supporting arms on the back rest, one arm journalled on each sleeve and engaged with the shoulder thereof, said sleeve having an axial length greater than the thickness of an arm, and a member threaded upon the end portion of each stud and engaged with the exposed end of the sleeve thereon, for holding the arm on the sleeve against displacement and for clamping each slide and stud to the associated upright.

3. In a back rest supporting structure for chairs, laterally spaced tubular uprights of rectangular cross section having a plurality of walls, the inner wall of each upright having a longitudinal slot in its upper portion, a slide disposed in the upper portion of each upright and engaged with one surface of the inner wall thereof, a stud carried by each slide and extending out through the associated slot, a sleeve on each stud and having a radial end shoulder engaged with the outer surface of the wall of the associated upright, a back rest, supporting arms on said back rest, one journalled on each sleeve and engaged with the shoulder thereof, said sleeves having axial lengths greater than the thickness of said arms, and a member threaded upon the end portion of each stud and engaged with the exposed end of the sleeve thereon, for holding the arm on said sleeve against displacement and for clamping each slide and stud to the associated wall of an upright.

4. In a back rest supporting structure for chairs, laterally spaced uprights each including an upper end portion having a longitudinal slot therein that opens through a face of said portion that confronts a face portion of the opposite upright, members each carried by a part of said end portion of each upright and having engagement with opposed wall portions of said uprights to form a non-rotative sliding guided engagement therewith, a stud carried by each member and extending out through the slot in said portion, a sleeve on each stud having a part of one diameter and another part of a greater diameter engaged with said adjacent face of an associated upright, a back rest, supporting arms on the back rest, each journalled on the exposed end of a sleeve and having a thickness less than the axial length thereof, and a means on each stud outwardly of but engaged with said sleeve for holding said arm against displacement therefrom and for clamping each member and its stud to the associated end portion of its upright.

5. In a back rest supporting structure for chairs, laterally spaced uprights and a member connecting upper end portions thereof, a back rest arranged forwardly of said portions of said uprights, means providing rearwardly extending supporting arms on said back rest, means positioned substantially in the central vertical plane of said spaced uprights and providing a pivotal connection for the rear ends of said arms, each with an associated upright for a rocking movement, said arms having parts punched laterally outward therefrom, each part for engaging a part of the associated upright to limit the rocking movement of the back rest and said arms in one direction, rocking movement of said back rest and said arms in the other direction being limited by the engagement of the back rest with said connecting member.

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