

Dec. 29, 1942.

W. McARTHUR

2,306,891

CHAIR BASE

Filed Aug. 21, 1940

3 Sheets--Sheet 1

Fig. 1.

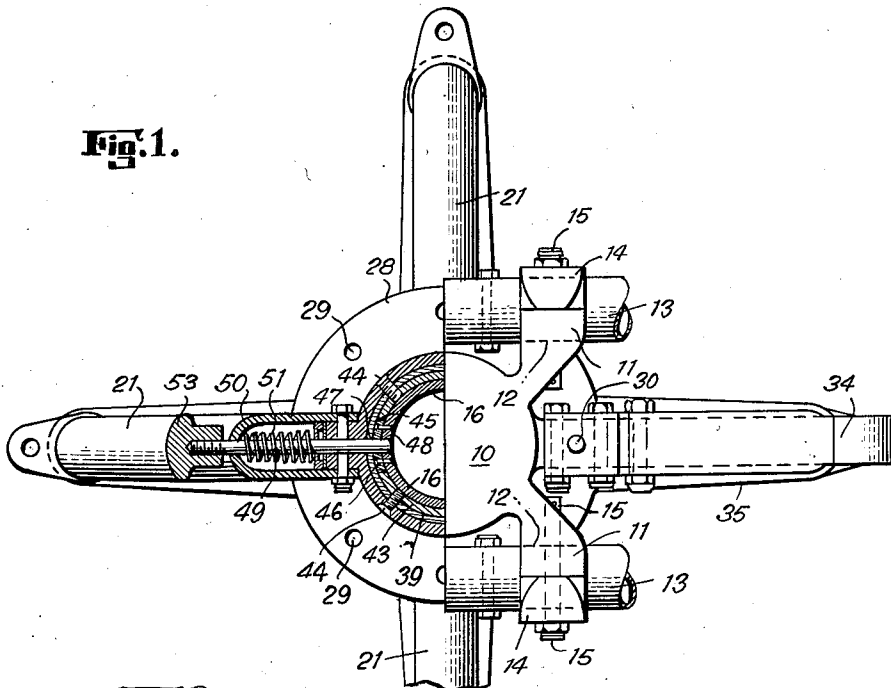
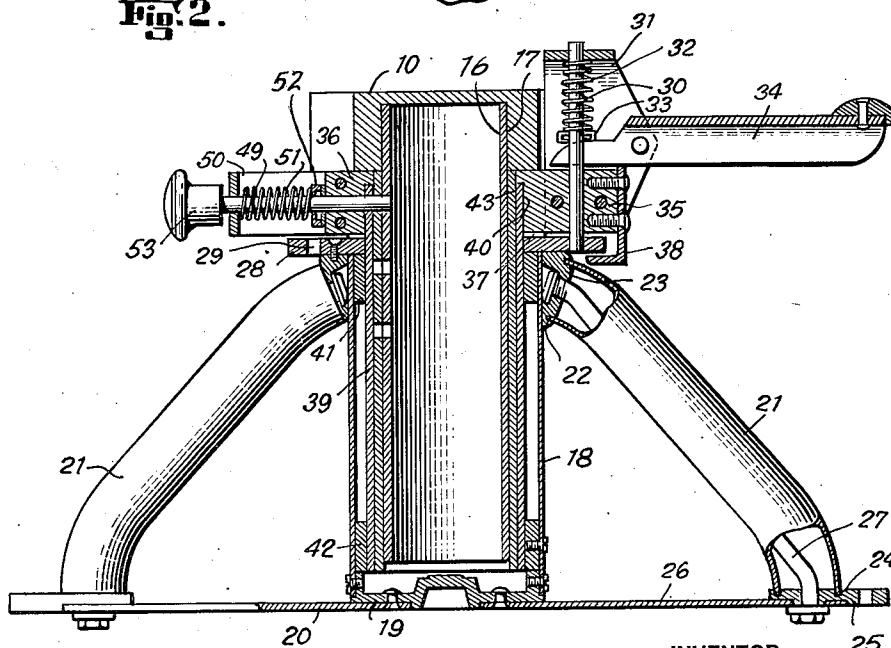


Fig. 2.



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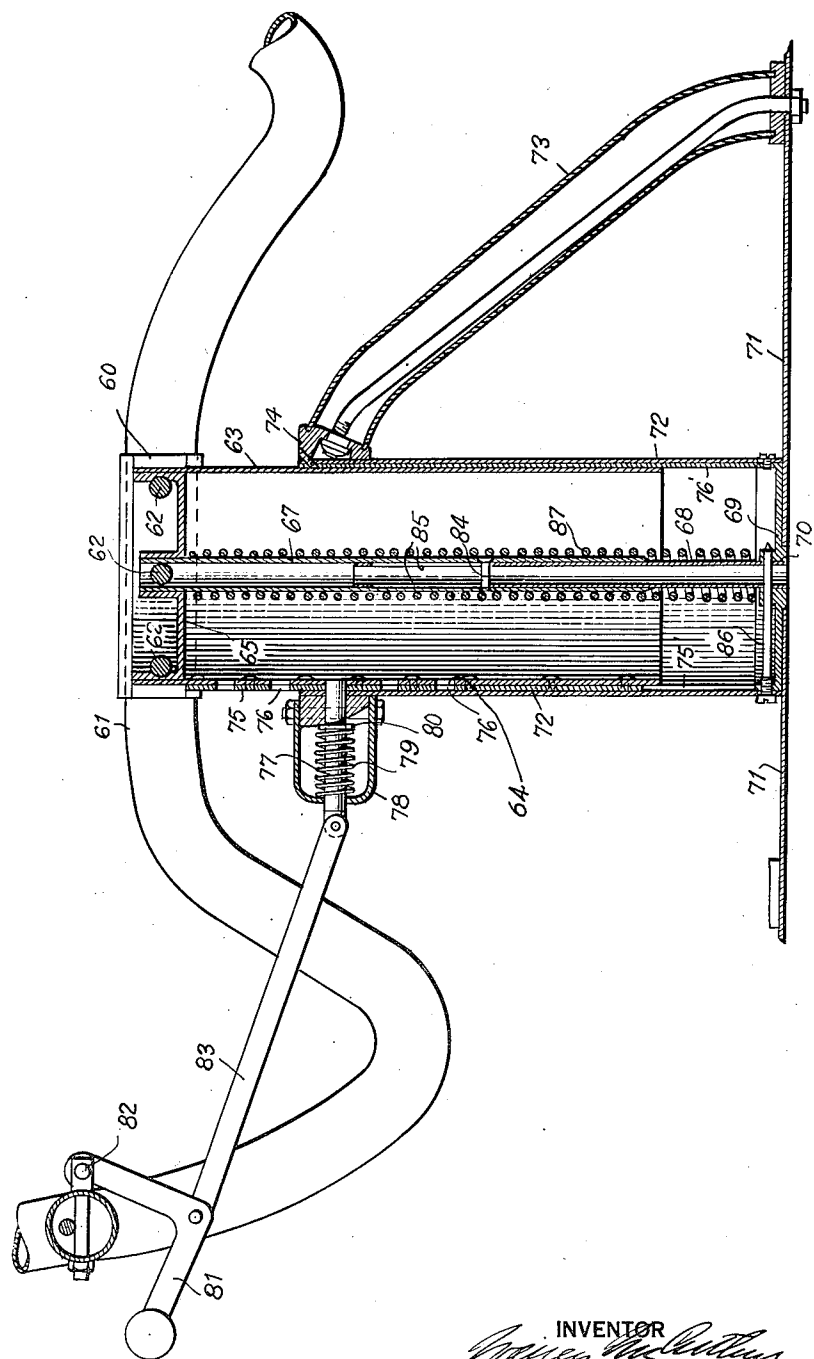
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Fig. 3.



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Fig. 4.

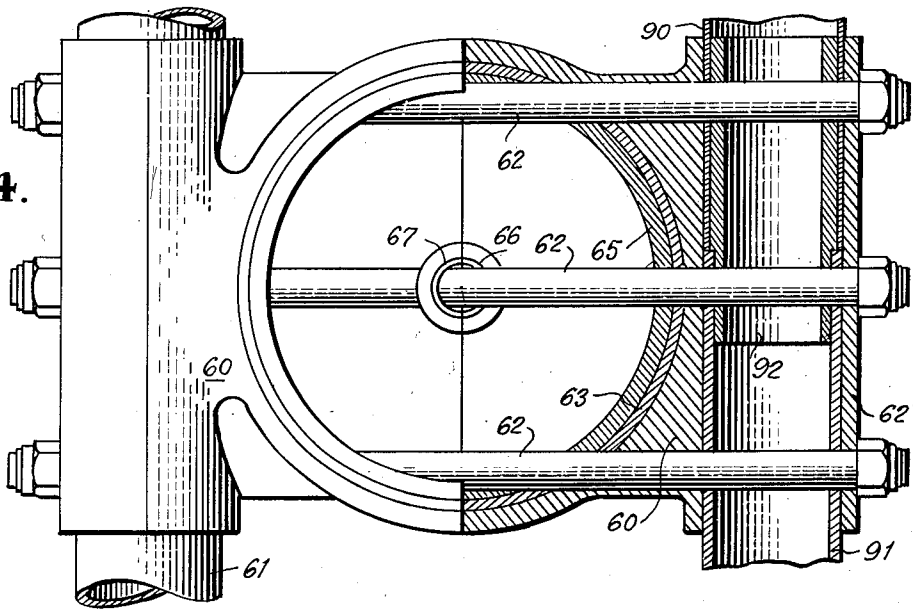
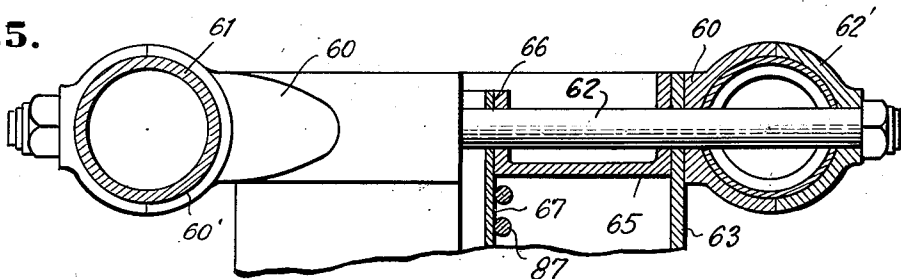


Fig. 5.



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CHAIR BASE

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Application August 21, 1940, Serial No. 353,463

10 Claims. (Cl. 155—138)

This invention relates to metal furniture and more particularly to adjustable seats or chairs designed for use in modern, high speed, light weight conveyances such as airplanes, railroad cars and the like.

An object of this invention is to provide an improved base or support for seats of the type set forth, constructed and arranged to combine the necessary strength with light weight, and to permit ready adjustment of the seat to suit the occupant.

This and other objects which will be apparent to those skilled in the art are accomplished by the present invention which is illustrated in the accompanying drawings, in which,

Fig. 1 is a view partly in plan and partly in horizontal section of a chair base constructed in accordance with one embodiment of this invention;

Fig. 2 is a vertical section thereof;

Fig. 3 is a vertical section through another form of base embodying features of this invention and showing in elevation a portion of the associated tubular chair frame;

Fig. 4 is a view partly in plan and partly in horizontal section of the base shown in Fig. 3; and

Fig. 5 is a partial vertical section thereof.

The particular embodiment of this invention illustrated in Figs. 1 and 2 provides a base permitting both rotational and vertical adjustment of the chair or seat mounted thereon, and locking in various positions. It is particularly adapted for use with chairs or seats having tubular frame members.

As illustrated, a crab 10 in the form of a casting forms the top of the base and provides a chair frame supporting plate. It is provided on opposite sides with outwardly extending pairs of claws 11 or the like having grooved inner faces 12 adapted to receive the tubular frame members 13 of a chair or the like and which are clamped in place by curved washers 14 on clamping bolts 15 mounted in the claws and extending through the frame members 13.

A tubular member 16 is mounted in a socket 17 in the under face of the crab casting 10 and extends downwardly within an outer sleeve 18 bolted at the bottom to a base casting 19 secured to a base plate 20 adapted to be secured rigidly to the floor or the like of the associated vehicle. The base is provided with tubular legs or braces 21 the upper ends of which seat in circular grooves 22 formed in four sides of a collar 23 secured to the upper end of the sleeve 18. The

lower end of each tube seats in a groove 24 formed in a block 25 mounted on an arm 26 extending out from the base plate. An inner rod 27 extends through each tubular leg and is secured to the collar 23 at its upper end and to the block 25 and arm 26 at its lower end. The inner rods and associated clamping nuts hold the base plate and associated parts in assembled relation. When the base is installed the locking nuts on the lower ends of the rods 27 are located in countersinks formed in the floor.

A circular annular plate 28 seats on the upper end of the sleeve 18 and is fastened to the top face of the collar 23. The plate has circular series of holes 29 cooperating with a spring pressed pin 30 mounted in a yoke 31 and pressed by a spring 32, operating between the yoke and a collar 33 on the pin, downwardly to engage in one of the holes. A pedal 34 pivoted in the yoke and engaging the collar 33 permits raising the pin out of engagement with the plate 29 to permit rotary adjustment of the chair. When the pin engages one of the holes 29 the chair is locked against rotary movement.

The yoke 31 is secured to a lug 35 formed on the side of a ring 36 supported on the plate 28 through spacer ring 37. A flanged plate 38 secured to the face of the lug 35 and extending under the perforated ring 28 prevents separation of the parts.

A tubular member or sleeve 39 is seated in a socket 40 in the ring 36 and extends downwardly into the outer sleeve 18 within spacer rings or bushings 41 and 42 at the top and bottom, respectively, of the sleeve 18. An intermediate tubular member 43 is fitted at its upper end within the annulus of the ring 36 and fits snugly between the inner tubular member 16 extending downwardly from the crab 10 and the outer member 39. Set screws 44, see Fig. 1, fasten the tubes 39 and 43 to the ring 36. The tube 43, see Fig. 1, is provided with a slot 45 within which is located a strip 46 riveted to the inner sleeve 16 and having holes 47 coinciding with holes 48 in the inner tube 16 for receiving the end of a pin 49 slidably mounted in a yoke 50 and normally pressed by a spring 51, operating between the yoke and a collar 52 on the pin, inwardly to engage in the openings in the two tubular members 16 and 43. A knob 53 or other device is provided for retracting the pin to permit vertical adjustment of the chair on the base.

Obviously, when the pin 49 is retracted the chair frame, plate 10, inner sleeve or tube 16 and strip 46 can be raised relatively to the base

and locked in any desired position by the pin 49 entering other holes in the tube 16 and strip 46. The sleeves 39 and 43 being secured to the ring 36, see Fig. 1, and the sleeve 16 and strip 46 being secured together and to the casting 10, relative rotation between any of these parts is prevented by the strip 46 in the slot 45.

Preferably, the tubes 16, 39 and 43, and rings 37, 41 and 42 are formed of some suitable fibrous or plastic material capable of silencing the operation of the parts. The perforated strip 46 is of a harder wear-resisting material such, for example, as steel.

The embodiment of the invention which is illustrated in Figs. 3 to 5 provides a base in which vertical adjustment only is available.

As illustrated, the top of the base is formed by a crab or frame supporting plate 60 in the form of an annular casting having horizontal semi-tubular openings 60' on opposite sides thereof for receiving the tubular frame members 61 of the associated chair or seat. Transverse locking bolts 62, shown as three in number, extend through the frame members and across the crab to clamp the frame members in place by means of semi-cylindrical clamping plates 62'.

A downwardly extending inner sleeve 63 having vertical series of holes 64 along one side is fitted snugly into the annulus of the crab and an inner circular plate 65 having a central bore 66 is fitted within the crab 60 and the tube 63. As shown, the bolts 62 clamp these parts rigidly together.

A tube 67 is secured in the central bore 66 and extends downwardly within the sleeve 63 where it surrounds a slotted telescoping tube 68 extending upwardly from a base casting 69, at its lower end being secured in a central bore therein 70. The base casting is secured to a base plate 71. An outer sleeve 72 which surrounds the inner sleeve 63 extends upwardly from the base casting to which it is secured. Tubular legs or braces 73 similar to those above described are provided and engage a similar leg ring 74 secured to the upper end of the outer sleeve 72. A strip 75 is riveted to the inner sleeve 63 and provided with perforations 76 coinciding with those of the inner sleeve.

The strip is slidable in a vertical slot 75' formed in an intermediate sleeve 76' mounted between the inner tube 63 and outer sleeve 72 and secured to the outer sleeve and to the leg ring by set screws or the like, not shown. As in the first described embodiment, the tube 63, strip 75 and casting 60 being secured together, and the outer tube 72, inner tube 76' and base 69 being secured together, relative rotation of the casting 60 and base 69 is prevented by the strip 75 in the slot 75' while vertical adjustment of the chair frame supporting plate is permitted.

A locking pin 77 adapted to enter the perforations of the sleeve 63 to support the chair frame in different vertically adjusted positions is mounted in a yoke 78 bolted to the leg ring 74 and pressed by a spring 79, operating between the yoke and a collar 80 or the like on the pin, so as to enter the holes 64. In this embodiment the pin can be retracted to permit adjustment of the chair frame, by a lift lever 81 mounted on a hinge 82 secured in any suitable and accessible position on the tubular chair frame. A link 83 connects the lever with the pin.

A pin 84 is mounted in the tube 67 and extends through diametrically opposed slots 85 in the telescoping tube 68. A bolt 86 locks the telescoping tube 68 against rotation in the base plate 69, while one of the clamping bolts 62 prevents

rotation between the tube 67 and the top casting 60. A strong spring 87 surrounds the telescoping tubes between the crab 60 and the base plate 69 to aid in lifting the chair frame, upward movement being limited by the pin and slot connection 84, 85.

In Fig. 4 is shown a construction permitting tubing of different gauge being connected end to end when parts of a given frame require members of different strength.

As illustrated, a tube 90 of relatively light gauge and a tube 91 of relatively heavy gauge are placed end to end within a tubular clamp on the crab 60. A tubular liner 92 having a constant inner diameter but an outer diameter which at one end fits the light gauge tube and at the other end fits snugly within the heavy gauge tube, thus forming an outer shoulder, is fitted in the joint between the tubes with the outer shoulder bearing against the end of the heavy tube. When so assembled the parts are clamped rigidly together and it will be noted that the liner is so constructed that resistance to transverse clamping pressure across the diameter of the small gauge tube is equal to the resistance across the heavy gauge tube. This arrangement provides a simple and effective way for connecting tubes of different gauge together end to end to form a single frame member.

It will be apparent that the invention can be variously modified and adapted within the scope of the appended claims.

I claim:

1. An article of furniture comprising a frame supporting plate, means for supporting said plate for vertical adjustment including an upright tubular member secured to said plate and provided with a vertical series of perforations, a base plate, an upright sleeve slidably receiving said tubular member and rigidly secured at its lower end to said base plate, a leg ring secured to the upper portion of said sleeve, legs secured to said leg ring and supported at their lower ends on said base plate for holding said sleeve upright, a spring pressed pin cooperating with the perforations in said tubular member for locking said frame supporting plate at different levels, and means for supporting said pin on said leg ring.

2. An article of furniture comprising a frame supporting plate, means for supporting said plate for vertical adjustment including an upright tubular member secured to said plate and provided with a vertical series of perforations, an upright sleeve slidably receiving said tubular member, a leg ring secured to said sleeve, legs secured to said leg ring for holding said sleeve upright, a second ring supported above said leg ring, a horizontal spring-pressed pin supported on said second ring and cooperating with the perforations in said tubular member for locking said frame supporting plate at different levels, a disc having a circular series of perforations therein secured to said leg ring, a vertical spring-pressed pin supported in said second ring and cooperating with the circular series of perforations in said disc for locking said frame supporting plate in different rotary positions, and means for withdrawing said pin from engagement with said disc to permit rotary adjustment of said frame supporting plate.

3. An article of furniture comprising a frame supporting plate, means for supporting said plate for vertical adjustment including an upright tubular member secured to said plate and provided with a vertical series of perforations, an upright sleeve slidably receiving said tubular member, a

leg ring and legs secured thereto for holding said sleeve upright, a spring pressed pin cooperating with the perforations of said tubular member for locking said frame supporting plate at different levels, means for supporting said pin, means for preventing relative rotation between said tubular member and said sleeve including an upwardly extending tube surrounding said upright tubular member, connected to said sleeve and having a slot opposite said perforations, and a perforated strip secured to said upright tubular member and slidable in said slot.

4. An article of furniture comprising a frame supporting plate, means for supporting said plate for vertical adjustment including an upright tubular member secured to said plate and provided with a vertical series of perforations, an upright sleeve slidably receiving said tubular member, a leg ring secured to said sleeve, legs secured to said leg ring for holding said sleeve upright, a spring pressed pin cooperating with the perforations of said tubular member for locking said frame supporting plate at different levels, means for supporting said pin on said leg ring, means for preventing relative rotation between said tubular member and said sleeve including a downwardly extending tube secured to said plate, an upwardly extending tube connected to said sleeve and telescopically received within said downwardly extending tube, a pin and slot connection between said telescoping tubes to limit upward movement of said plate, and a spring for assisting in raising said plate when said pin is withdrawn from said perforations.

5. An article of furniture comprising a frame supporting plate, means for supporting said plate for vertical adjustment including an upright tubular member secured to said plate and provided with a vertical series of perforations, an upright sleeve slidably receiving said tubular member, means for supporting said sleeve in fixed upright position, a spring pressed pin supported on said sleeve and cooperating with the perforations in said tubular member for locking said frame supporting plate at different levels, a base plate secured to said sleeve, a tube secured to said frame supporting plate and extending downwardly therefrom, a second tube secured to said base plate and extending upwardly therefrom and telescoping with said first tube, a pin and slot connection between said tubes to limit upward movement of said frame supporting plate, and a spring surrounding said telescoping tubes between said frame supporting plate and said base plate to assist in raising said frame supporting plate when said pin is withdrawn from said perforations.

6. An article of furniture comprising a frame supporting plate, means for supporting said plate including an upright tubular member secured to

said plate, an upright sleeve slidably receiving said tubular member, a leg ring secured to said sleeve, legs secured to said leg ring for holding said sleeve upright, a second ring supported above said leg ring, a disc having a circular series of perforations therein secured to said leg ring, a vertical spring-pressed pin supported in said second ring and cooperating with the circular series of perforations in said disc for locking said frame-supporting plate in different rotary positions, and means for withdrawing said pin from engagement with said disc to permit rotary adjustment of said frame-supporting plate.

7. An article of manufacture comprising a frame-supporting plate, means for supporting said plate including an upright tubular member secured to said plate, an upright sleeve slidably receiving said tubular member, a leg ring secured to said sleeve, legs secured to said leg ring for holding said sleeve upright, a second ring supported above said leg ring, a disc having a circular series of perforations therein secured to said leg ring, and a vertical spring-pressed pin supported in said second ring and cooperating with the circular series of perforations in said disc for locking said frame-supporting plate in different rotary positions.

8. An article of manufacture comprising a frame-supporting plate, means for supporting said plate including an upright member secured to said plate, an upright sleeve slidably receiving said member, a leg ring secured to said sleeve, legs secured to said leg ring for holding said sleeve upright, a second ring supported above said leg ring, a disc having perforations therein secured to said leg ring, and a spring-pressed pin supported in said second ring and cooperating with the perforations in said disc for locking said frame-supporting plate in different rotary positions.

9. An article of manufacture comprising a base plate, a sleeve mounted thereon, a leg ring engaging said sleeve above said base plate, tubular legs connecting said base plate and said leg ring for holding said sleeve upright, and means for clamping said base plate, legs and leg ring together including a rod extending through each tubular leg and connected to said base plate and leg ring.

10. An article of manufacture comprising a base plate, a sleeve mounted thereon, a leg ring engaging said sleeve above said base plate, tubular legs positioned on said base plate and supporting said leg ring to hold said sleeve upright, inner rods connecting said base plate and leg ring and extending through each tubular leg, and means associated with said rods for securing said base plate, legs and leg ring together.

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