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2,821,762

CLAMPS

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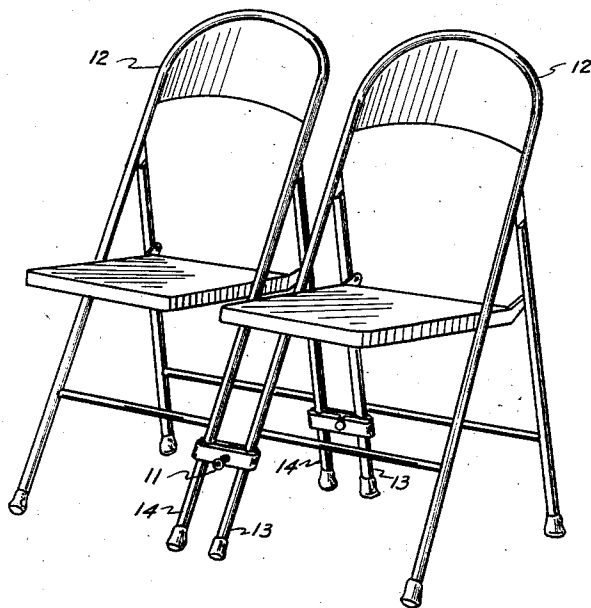


Fig. 1

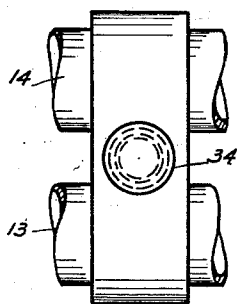


Fig. 4

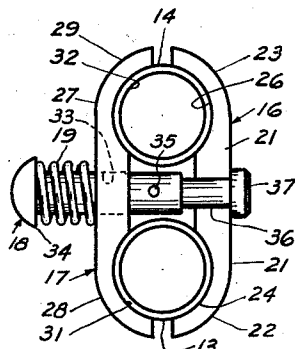


Fig. 2

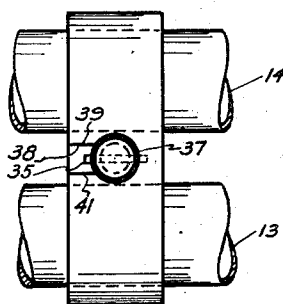


Fig. 3

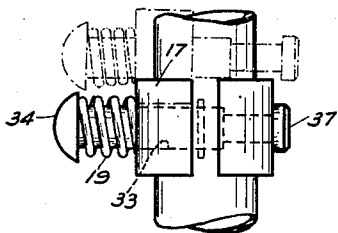


Fig. 5

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CLAMPS

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1 Claim. (Cl. 24—81)

This invention relates to clamps and more particularly to clamps for holding two or more chairs in related position.

An object of the invention is to provide an improved clamp of the above character that permits quick and easy joining of two or more chairs and also quick and easy release of the chairs whereby a minimum of time is required to set up and take down pre-arranged rows of chairs held together in alinement.

Another object of the invention is the provision of a clamp of the above character which is adapted to engage the leg portions of chairs which may be readily placed in position and quickly removed from its assembled position without tools through simple manual manipulations.

Another object of the invention is the provision of a clamp of the above character which is positive in its action, which is of simple construction, and which is inexpensive to manufacture.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which:

Figure 1 shows a pair of associated chairs held together by means of clamps embodying the present invention.

Figure 2 is an enlarged top view showing details of construction of a clamp.

Figure 3 is a back view of a clamp.

Figure 4 is a front view of a clamp.

Figure 5 is a side view of a clamp.

Referring now to the drawings, the invention is shown embodied in a clamping device for holding a pair of conventional folding chairs in fixed relation. While only two chairs are shown being held in fixed relation by two clamps herein, it is to be understood that any number of chairs may be held in fixed relation to each other by one or more clamping devices acting between any two adjacent chairs, and that each clamping device is assembled and operates in the same manner.

As best seen, the clamping device in this embodiment is arranged to engage a support member or leg 13 of one chair 12 and a leg or support member 14 of an adjacent chair. The details of the clamping device are best shown in Figures 2-5. In general the clamping device is comprised of a pair of opposed members 16 and 17 having jaw portions, at each end, shaped to engage the chair support members 13 and 14 respectively; a pin 18 coacting with the opposed members 16 and 17 to hold the latter in assembled relation and constructed and arranged with the jaw members 16 and 17 to permit ready assembly and disassembly of the parts; and spring means 19 arranged to coact with the members 16 and 17 and the pin 18 to bias the jaw members towards each other when the clamping device is in assembled position.

As best seen in Figure 2 the clamping member 16 has a central or body portion 21 and end portions 22 and 23. Therein the end portion 22 has an arcuate inner face 24

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shaped to conform to the peripheral surface of the circular chair support 13 and the end portion 23 is provided with an inner arcuate surface 26 shaped to conform to the peripheral surface of the support member 14.

The member 17 is comprised of a central or body portion 27 and end portions 28 and 29. The end portion 28 is formed with an arcuate inner surface 31 shaped to conform to the peripheral surface of the circular chair support 13 and the end portion 29 is formed with an inner arcuate portion 32 shaped to conform to the peripheral surface of the circular chair support 14. The members 16 and 17 when in a clamping position are arranged to be in opposed relation. Thus, when the clamping device is in assembled position the end portions 22 and 28 in effect define jaws gripping chair support 13 and the end portions 23 and 29 in effect define jaws for gripping the chair support 14.

The pin 18 is mounted on the member 17 by being inserted through an opening 33 extending through the central portion 27 of the clamping member 17. The opening is of such shape that the pin 18 may be moved bodily relative to the clamping member 17. At one end the pin is formed with a head 34 and at its opposite end the pin is formed with a reduced portion 36 which defines an annular shoulder 37 at its outer end. The reduced portion is shaped to be received in a slot 38 in the clamping member 16 opening on one face of the member 16, and the shoulder 37 coacts with the shoulders or walls 39 and 41 defining the slot 38 to hold the clamping members 16 and 17 in opposed relation.

The spring means 19 in this instance for biasing the clamping members 16 and 17 together is formed by a compression spring mounted on the pin 18 and disposed between the head 34 of the pin 18 and the clamping member 17. A cotter pin 35 between the members 16 and 17 holds the spring 19, member 17, and pin in assembled relation.

The operation of the clamping device is readily apparent, but may be summarized as follows:

The member 17 together with the pin 18 and the spring 19 are placed in position so that the members 13 and 14 are received in the jaw portions of the clamping member. A pressure is applied to the pin so that the latter is moved bodily relative to the clamping member 17 and the spring 19 as shown by dotted lines in Figure 5 is compressed. The clamping member 16 is then placed on the opposite side of the members 13 and 14 and moved bodily relative to the member 17 so that the reduced portion 36 of the pin 18 is received in the slot 38 formed on the member 16. The pressure on the pin 18 is thereafter removed and the tension on the spring 19 acting through the pin 18 on the members 16 and 17 biases the latter towards each other to positively grip the supports 13 and 14 and positively hold the chairs in fixed relation to each other. When it is desired to separate the chairs it is only necessary to apply a pressure to the head 34 of the pin 18 sufficient to overcome the bias of the spring 19 and bodily move the clamping member 16 relative to the member 17 a sufficient distance so that the annular shoulder 37 becomes disengaged from the walls 39 and 41. The clamp is then free to be removed from the supports 13 and 14 and the chairs can be readily taken apart. Where desired, the member 16 may be placed in position and the pin 18, member 17, and spring moved relative to member 16.

From the foregoing it is seen that the device can be readily applied and removed from chairs through simple manual manipulations without the use of tools. Furthermore this clamp can be readily manufactured. It is simple in operation, and while it has been shown herein as being applied to holding chairs in fixed relation with each other,

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it is to be understood that this clamp can be used in other applications where it is desired to hold two members in fixed relation. It is further understood that the shape of the jaws may be changed to conform to the shape of the members which are being held in fixed relation. Also, while members 16 and 17 have been shown herein as

solid members, of any suitable material, it is to be understood that the members may also be formed from sheet metal folded to substantially the configuration shown.

I claim:

In a device for holding spaced supports, and the like, in fixed relation, the combination of a first clamping member having jaw portions at each end thereof shaped to engage said supports, a second clamping member in opposed relation to said first clamping member having second jaw portions at each end thereof and shaped to engage said spaced supports at positions in opposition to said first jaw portions, said opposed jaw portions being in spaced relation when engaging said members; one of said members having an opening between said jaw portions, the other of said members having a slot between said jaw portions opening on one edge to define spaced shoulders, a pin shaped to extend through said opening and said slot,

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said pin having an enlarged head at one end shaped to be manipulated, and having a reduced portion at its opposite end shaped to be received in said slot and to define an abutment to engage said shoulders defined by said slot on said other member to hold said members in assembled relation, and spring means acting between said pin and

one member and said shoulders to apply a force between said opposed jaw portions when said members engage said supports whereby said spaced supports are positively held in fixed relation, said spring means being yieldable upon application of manual force to said pin whereby said other member may be manually removed from association with said pin without the use of tools upon release of pressure between said clamping members.

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