# United States Patent [19]

**Barile**

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[54] **STACKING CHAIR GLIDER ATTACHMENT**


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[52] **U.S. Cl.** ..... **16/42,** 297/239, 248/345.1

[51] **Int. Cl.** ..... **A47b 91/06**

[58] **Field of Search** ..... 297/339; 46/42 T, 46/42; 248/188.8, 346.1, 345.1; 108/91



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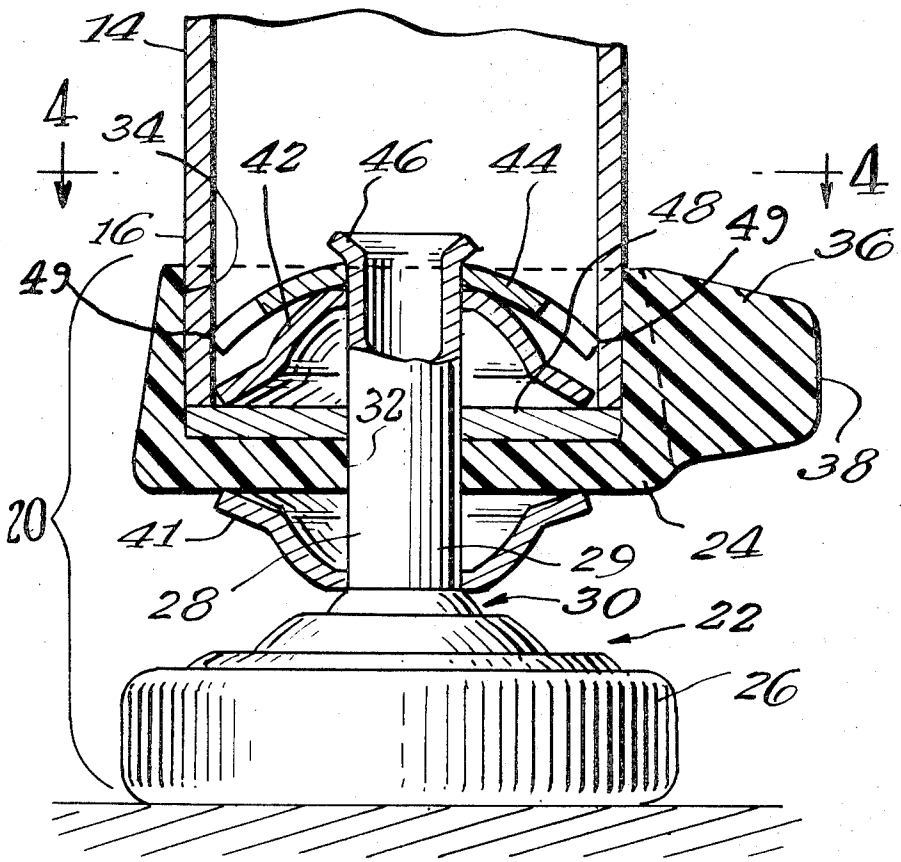
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[57] **ABSTRACT**

An assembly adapted to be mounted to the bottom of a stacking chair leg and which includes a glide for engaging a floor and a bumper having a protuberance arranged to engage the leg of a nether chair in a stacked arrangement of chairs.

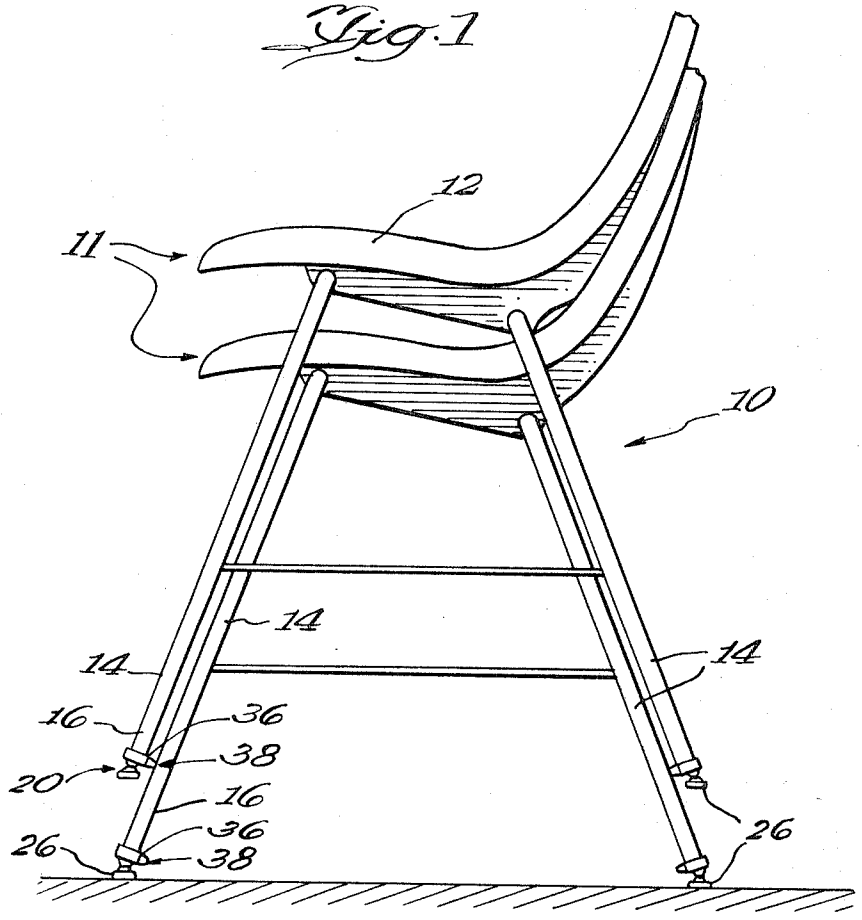

**5 Claims, 6 Drawing Figures**



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Fig. 1



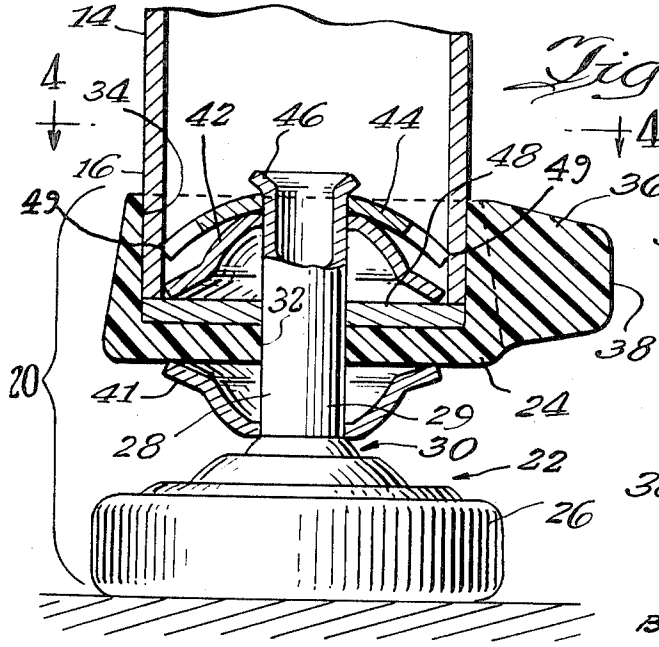
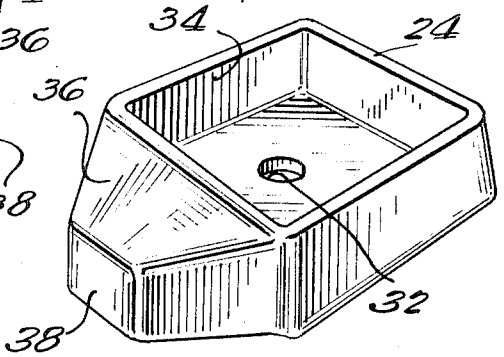




Fig. 2

Fig. 3




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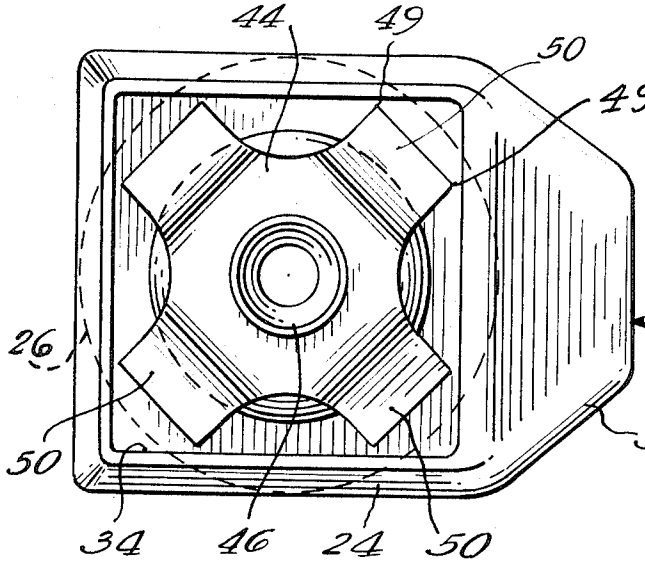



Fig. 4

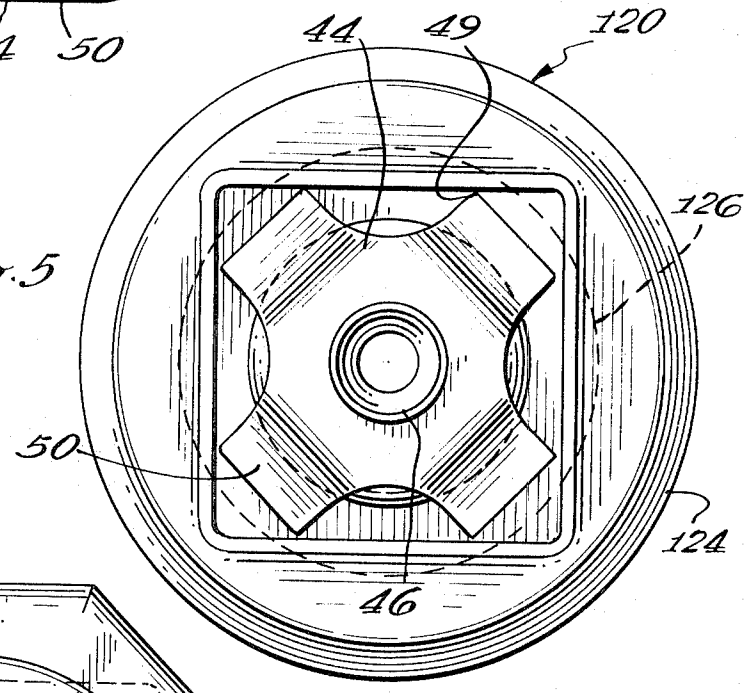



Fig. 5

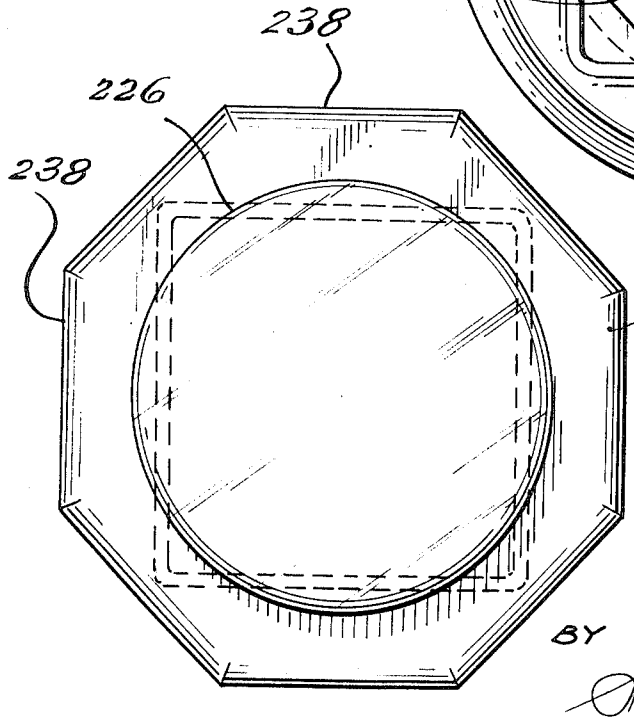



Fig. 6

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# STACKING CHAIR GLIDER ATTACHMENT

## BACKGROUND OF THE INVENTION

The invention relates to a glide and bumper assembly which is mounted to the bottom of a leg of a stacking chair or other similar supporting structure. The assembly includes a conventional floor glide for engaging a floor and a bumper connected to the glide and having a protuberance arranged to engage the leg of a lower chair in a stack when the chair mounting said glide and bumper assembly is engaged upon the lower chair.

In present day stacking chair and the like chair construction, it is common practice to provide a pivotal glide at the bottom of each chair leg, the glide having a smooth bottom surface which prevents scratching of the floor. Where a chair is designed so that it can be stacked upon a like chair, it is desirable that some means be provided for preventing scratching of the chair legs by the glides when the chairs are stacked. Also, it is desirable that some means be provided on the chair legs which will enable an upper chair to engage legs of another chair when the chairs are stacked one upon the other so as to provide a stable stack of chairs.

Accordingly, some stackable chairs are provided with an oversized glide having a lateral or radial extent greater than the cross-section or lateral extent of the chair leg to which it is attached so that when the chairs are stacked, one upon the other, the glide at the bottom of each chair leg will engage the side of the chair leg of a chair therebeneath. In other stackable chairs, a bumper is mounted on the side of each chair leg and is adapted to engage the leg of another chair when the chairs are stacked one upon the other.

The combination glide and bumper assembly of the present invention includes a conventional glide and a bumper member connected to the glide having a protuberant portion adapted to engage the leg of another chair when the chairs are stacked one upon another. The bumper member also can form part of the means for connecting the assembly to the bottom of a chair leg.

## SUMMARY OF THE INVENTION

The combination glide and bumper assembly of the present invention includes a conventional glide, a non-metallic bumper member connected to the glide and means for connecting the assembly to the bottom of a leg of a supporting structure, such as a chair. The glide includes a foot and a stem pivotally connected at one end to the foot. The bumper member is mounted on the stem and has at least a portion thereof which protrudes or projects laterally outwardly from the assembly and which is adapted to contact the leg of another supporting structure when the first mentioned supporting structure is stacked upon another supporting structure.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of two chairs stacked one upon the other with each of the chair legs of the chairs having the combination glide and bumper assembly of the invention mounted on the bottom thereof.

FIG. 2 is an enlarged view of the assembly of the invention connected to the bottom of a chair leg with a portion of the assembly in section.

FIG. 3 is a perspective view of the bumper member of the assembly shown in FIGS. 1 and 2.



FIG. 4 is a top plan view of said assembly as viewed from line 4—4 of FIG. 2.

FIG. 5 is a top plan view of another embodiment of the assembly of the invention.

FIG. 6 is a bottom plan view of still another embodiment of the assembly of the invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, a stack 10 of two chairs 11 is shown in FIG. 1. Each of the chairs 11 includes a conventional combined seat and back rest 12 with four legs 14 extending therefrom. The legs 14 of the chairs 11, as illustrated, are hollow or tubular legs of square cross-section, although this configuration is not critical. The bottom 16 of each of the legs 14 has a combination glide and bumper assembly embodying the invention connected thereto, as indicated generally at 20.

As best shown in FIG. 2, each assembly 20 includes a glide 22 and a non-metallic bumper or bumper member 24. The glide 22 includes a disc-shaped foot 26 and a stem 28 which is povotally connected at one end 29 to the foot 26 through a ball-and-socket joint indicated at 30. The glide 22 is a well-known conventional structure.

The bumper 24 is generally square in cross-section and has a central bore 32, seen in FIG. 3, through which the stem 28 is extended when the bumper 24 is mounted on the stem 28. As shown in FIG. 3, bumper 24 is generally dish-shaped to provide a generally square cavity 34 therein. The cavity 34 is adapted to receive the bottom 16 of the leg 14 as best shown in FIG. 2. Preferably, the bottom 16 is frictionally fit into the cavity 34 such that the cavity 34 forms at least part of the means for connecting the assembly 20 to the bottom 16 of one of the legs 14.

As shown in FIGS. 2 and 3, the bumper 24 has a protuberance or projection 26 extending from at least one side thereof. Preferably, the projection 36 is solid and integral with the remainder of the bumper 24. The projection 36 extends laterally outwardly from the assembly 20 and beyond the lateral extent of the periphery of the foot 26 so that when one chair 11 is stacked upon another chair, the projection 36 will engage and seat against the leg of a chair therebeneath. Preferably, the end of the projection 36 is blunt and has a seat or seating surface 38 which will come into contact with a side of one of the legs 14. The provision of the seat 38 on the projection 36 of the bumper 34 is preferred since it not only prevents the legs 14 of the stacked chairs from scratching each other, but also makes for an extremely stable stacking of the chairs 11.

As shown in FIG. 2, the assembly 20 also includes two cup-shaped spacers 41 and 42 and a deflectable retainer plate 44 which are mounted on the stem 28. In this respect the spacers 41 and 42 are located on either side of the bumper 24 and the deflectable retainer plate 44 is positioned on the stem 28 above the cup-shaped spacer 42. In the illustrated embodiment, the stem 28 is tubular and is flared at the upper end 46 thereof for holding the retainer plate 44, cup-shaped spacer 42, bumper 24 and cup-shaped spacer 41 in assembled position. In the illustrated embodiment, a washer 48 is situated on the stem 28 between the lower edge of the cup-shaped spacer 42 and the bottom of the cavity 34 in the bumper 24. It is to be noted that the flaring of the

end 46 of the stem 28 provides a simple inexpensive and effective means for fixing the parts of the assembly together.

In cross-section, the retainer plate 44 has a dish-shape and is mounted on the stem 28 in such a way that the outer edges thereof are located downwardly and outwardly from the flared end 46 of the stem 28. Before the assembly 20 is connected to the bottom 16 of one of the legs 14, the lateral extent of the plate 44 is greater than the interior cross-section of the tubular leg 14 so that when the assembly 20 is mounted at the bottom 16 of one of the legs 14, the edges of the retainer plate 44 will be deflected downwardly and inwardly and will frictionally engage the interior wall of the leg 14. In this respect, sharp corner edges 49 of the retainer plate 44 engage the interior wall of the leg 14 in such a way that any attempt to pull the assembly 20 from the bottom 16 of one of the legs 14 will tend to urge the corner edges 49 into the interior wall of the leg 14. In this way, a strong connection is made between the bottom 16 of one of the legs 14 and the assembly 20. Also, it is to be understood, that the tight and snug fit between the cavity 34 and the outer periphery of the bottom 16 of the leg 14 received therein cooperates with the retainer plate 44 in holding the assembly 20 to the bottom 16 of one of the legs 14.

As shown in FIG. 4 the retainer plate 44 preferably has the shape of an X with four legs 50. Each leg 50 has two of the corner edges 49 thereon.

Another embodiment of the combination and glide and bumper assembly of the present invention is generally indicated at 120 in FIG. 5. The assembly 120 includes a circular bumper 124 and a foot 126 identical to the foot 26 shown in FIG. 2. In this embodiment the entire periphery, of the bumper 124, extends laterally outwardly from the assembly 120. In this respect the lateral or radial extent of the bumper 124 is greater than the lateral or radial extent of the foot 126 so that when chairs having the assemblies 120 mounted at the bottom of each leg thereof are stacked, the bumpers 124 mounted on each chair will engage the legs on the chair therebeneath.

It will be noted that when the assembly 20 is mounted at the bottom 16 of one of the legs 14, it must be so mounted that the projection 36 on each front leg extends toward each rear leg of the chair 11 and vice versa. Since the bumper 124 of the assembly 120 shown in FIG. 5 has a circular shape, a particular orientation of the assembly 120 on the bottom 16 of one of the legs 14 is not required. Accordingly, the assembly 120 has an advantage over the assembly 20 in that no particular orientation in the mounting thereof on the bottom of a chair leg is required. However, it is to be noted that in some applications, the assembly 20 may be preferred over the assembly 120, particularly where it is desired that no portion of the assembly extend outwardly from the chair, and a portion (projection 36) of the bumper (bumper 24) only projects outwardly toward another leg of the chair and within the periphery of the chair as defined by the legs thereof.

Still another embodiment of the combination glide and bumper assembly of the present invention is shown at 220 in FIG. 6. This assembly is similar to the assemblies 120 and 20 and the only difference is in the shape of the bumper 224 which, in this embodiment, is octagonal. The other components of the assemblies 20, 120 and 220 are identical. The octagonal shape of the bumper 224 has the same advantage of the circular bumper 124 in that no special orientation of the assembly is required when it is mounted at the bottom of the leg of a chair. Additionally, the octagonal bumper 224 has the advantage of having a plurality of seating surfaces 238, any one of which is adapted to engage the side of a chair leg when a plurality of chairs utilizing the bumper assemblies 220 are stacked one upon the other. By having the seating surfaces 238, a more stable stacking of a stack of chairs with square legs is obtained.

Although several preferred embodiments of the glide and bumper assembly of the present invention have been described above, it is to be understood that obvious modifications, variations and alterations can be made to the glide and bumper assemblies of the present invention without departing from the spirit or scope of the invention. In this respect, the assemblies 20, 120 and 220 can be modified to accommodate tubular chair legs. In such applications, of course, the cavity formed in each bumper 24, 124 and 224 will have a circular shape. Also it may be desirable in such modified embodiments to change the shape of the retainer plate from an X shape to a square shape.

Accordingly, what it is desired to secure by Letters Patent of the United States is:

1. In a glide and bumper assembly for hollow leg stack chairs the combination comprising a glide including a foot portion and a stem portion, a non-metallic bumper connected to said glide, means connecting said assembly to the lower extremity of said hollow leg, said bumper including a body portion provided with a generally square cavity therein defined by an encircling wall, said stem portion of said glide extending through said bumper and into said cavity, retainer means mounted on the portion of said stem extending into said cavity, said retainer including deflectable fingers extending outwardly toward and within said encircling wall and a protuberant portion on said bumper body extending laterally outwardly therefrom dimensioned to engage the leg of a next chair in a stack of chairs.

2. The assembly as claimed in claim 1 in which said connecting means includes means on said bumper for engaging the bottom of the leg.

3. The assembly as claimed in claim 1 wherein said bumper has a bore through which said stem is received for mounting said bumper on said stem.

4. The assembly as claimed in claim 1 wherein said bumper is generally circular and has a symmetrical lateral or radial extent which is greater than the lateral extent of said foot.

5. The assembly as claimed in claim 1 in which said bumper is generally polygonal, and has a symmetrical lateral extent which is greater than the lateral extent of said foot.

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