GANGING DEVICE FOR CHAIR

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ABSTRACT

A ganging system for a chair includes a first support interconnected with the chair adjacent the first side of the chair and a first ganging member slidably supported by the support. The first ganging member has a retracted position, a fully extended position, and at least one intermediate partially extended position. A second support is interconnected with the chair adjacent the second side of the chair and a second ganging member is supported by the second support. The ganging members have ganging features that interconnect with the ganging feature of a like chair so as to interconnect the chairs.
GANGING DEVICE FOR CHAIR

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This patent application claims priority to U.S. provisional patent application Ser. No. 61/733,638, filed Dec. 5, 2012, the content of which is incorporated herein in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates generally to a ganging device for chairs.

BACKGROUND OF THE INVENTION

[0003] Banquet halls, convention halls, and auditoriums often use individual chairs to provide seating, with the chairs being rearranged depending on the type of event. When the chairs are arranged in rows, it is sometimes desirable to interlock the chairs into rows. This may be referred to as “ganging” the chairs. For this purpose, some chairs include ganging devices or ganger brackets for interlocking each chair with its immediately adjacent neighboring chair or chairs. These ganging devices typically take the form of some type of hook that extends from one side of the chair and a corresponding engagement opening on the opposite side of the chair. When two chairs with compatible ganging devices are arranged side by side, they may be interlocked by the hook portion of one ganging device engaging the opening in the corresponding ganging device of its neighboring chair.

[0004] While ganging devices are useful when chairs are arranged into rows, it may also be desirable to use the chairs without the ganging devices. For this purpose, it is desirable to have ganging devices that may be retracted when not in use.

[0005] When chairs are ganged into rows, the ganging devices typically place the chairs at a fixed distance relative to one another. Depending on the event, it may be desirable to have the chairs interlocked or ganged very close to one another, to maximize the number of chairs in a given area. For other events, it may be desirable to interlock or gang the chairs with greater spacing, in order to increase the comfort of occupants.

SUMMARY OF THE INVENTION

[0006] The present invention provides a ganging system for a chair of the type having a generally horizontal seat supported by four legs. The chair has a first side and a second side. The ganging system includes a first support interconnected with the chair adjacent the first side of the chair and a first ganging member slidably supported by the support. The first ganging member has a retracted position, a fully extended position, and at least one intermediate partially extended position. The first ganging member extends from the first side of the chair in the partially extended and fully extended positions. A second support is interconnected with the chair adjacent the second side of the chair. A second ganging member is supported by the second support. The first ganging member has a first ganging feature and the second ganging member has a second ganging feature. The first ganging feature is configured to engage the second ganging feature of a like chair so as to interconnect the chair and the like chair.

[0007] In certain embodiments, one of the ganging members has an opening defined therein, the opening sized to receive and hold a drinking cup. The ganging member with the opening defined therein may be the first ganging member. A bottom support may be provided, with the bottom support disposed below the opening for supporting a bottom of a drinking cup received in the opening. The bottom support may be pivotally interconnected with the ganging member.

[0008] In certain embodiments, the first ganging member has at least one detent defined therein and a spring-loaded detent element is provided that engages the detent in the first ganging member when the ganging member is in the partially extended position so as to retain the first ganging member in the partially extended position.

[0009] In certain embodiments, the second ganging member is slidably supported by the second support and has a retracted position and an extended position.

[0010] In certain embodiments, one of the ganging features is a tab and the other of the ganging features is a slot for receiving the tab of a like chair. In some versions, the slot is a generally horizontal slot and the tab extends downwardly.

[0011] The present invention also provides a ganging system that includes a ganging member interconnected with one of the sides of a chair. The ganging member has a ganging feature for engaging a ganging feature of another ganging member and the ganging member has a drink holder defined therein for receiving a drinking cup. In some versions, the drink holder includes a generally circular opening in the ganging member. A bottom support may be provided below the opening for supporting a bottom of a drinking cup received in the opening.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a perspective view of a pair of chairs interconnected by ganging devices in accordance with an embodiment of the present invention;

[0013] FIG. 2 is a front perspective view of a chair with ganging devices in accordance with an embodiment of the present invention, with the ganging devices in their fully extended positions;

[0014] FIG. 3 is a rear perspective view of the chair of FIG. 2;

[0015] FIG. 4 is a detailed perspective view of a ganging device in accordance with an embodiment of the present invention, with the ganging device in a partially extended intermediate position;

[0016] FIG. 5 is a view similar to FIG. 4 with the ganging device extended at a second intermediate position;

[0017] FIG. 6 is a view similar to FIGS. 4 and 5 with the ganging device in a fully extended position;

[0018] FIG. 7 is an exploded view of a ganging device in accordance with the present invention;

[0019] FIG. 8 is a view of a ganging device for use in association with the ganging device of FIGS. 4-7, with the ganging device in a retracted position;

[0020] FIG. 9 is a view of the ganging device of FIG. 8 with the ganging device in an extended position;

[0021] FIG. 10 is a detailed view of two chairs interconnected using ganging devices in accordance with the present invention, wherein one of the ganging devices is in a partially extended intermediate position;

[0022] FIG. 11 is a view similar to FIG. 10 with one of the ganging devices in a second intermediate position;

[0023] FIG. 12 is a view similar to FIGS. 10 and 11 with one of the ganging devices in a fully extended position;
[0024] FIG. 13 is a perspective view of a pair of chairs interconnected by ganging devices in accordance with a second embodiment of the present invention;

[0025] FIG. 14 is a front perspective view of a chair with ganging devices in accordance with the second embodiment of the present invention, with the ganging devices in their fully extended positions;

[0026] FIG. 15 is a detailed perspective view of a ganging device in accordance with the second embodiment of the present invention, with the ganging device in a fully retracted position;

[0027] FIG. 16 is a view similar to FIG. 15 with the ganging device in a fully extended position;

[0028] FIG. 17 is a view similar to FIG. 16 with the ganging device shown at a different angle;

[0029] FIG. 18 is a perspective view of a ganging device for use in association with the ganging device of FIGS. 15-17, with a ganging device in an extended position;

[0030] FIG. 19 is a view similar to FIG. 18 with the ganging device in a retracted position; and

[0031] FIG. 20 is a perspective view of a pair of ganging devices both in extended positions and interconnected with one another.

DETAILED DESCRIPTION OF THE INVENTION

[0032] The present invention provides ganging devices for use with chairs wherein it is desirable to interconnect like chairs in a side-by-side row. Referring to FIG. 1, a first chair is shown at 10 and a second chair is shown at 12. The chair 10 has a first ganging member 14 extending from a first side of the chair and a second ganging member 16 extending from a second side of the chair. The second chair 12 has a first ganging member 18 extending from a first side of the chair and a second ganging member 20 extending from a second side of the chair. The second ganging member 20 of the second chair 12 is interconnected with the first ganging member 14 of the first chair 10, thereby interlocking the chairs in a side-by-side arrangement.

[0033] Referring to FIGS. 2 and 3, the first chair 10 is shown in more detail. The chair 10 has a generally horizontal seat cushion 22 that is supported by four legs 24. The chair 10 may be said to have a first side 26 and an opposed second side 28. The first ganging member 14 is interconnected with the first side 26 and the second ganging member 16 is interconnected with the second side 28. In the illustrated embodiment, the first ganging member 14 is a generally planar member having an upper surface 30 and an opposed lower surface 32. The ganging member 14 is slidably received by a support 34 interconnected with the chair 10. The ganging member 14 has an outer end 36 with a receiving slot 38 defined therethrough. The slot 38 may be considered a ganging feature that cooperates with a corresponding ganging feature for interlocking ganging member 14 with an adjacent ganging member. By sliding the ganging member 14 in the support 34, the position of the outer end 36 relative to the side 26 of the chair 10 may be adjusted. In a fully retracted position, the ganging member 14 may be mostly hidden with the outer end 36 retracted almost completely into the support 34. This is a non-use position.

[0034] Referring now to FIG. 2, the second ganging member 16 is also a generally planar member. It is also slidably supported by a support 40 that interconnects it with the second side 28 of the chair 10. It is shown in the fully extended position. The ganging member 16 has an outer end 42 with a downwardly extending tab 44. As will be clear to those of skill in the art, the tab 44 may engage the slot 38 of a ganging device 14 of an adjacent like chair, thereby interconnecting the chairs in a side-by-side arrangement.

[0035] In preferred embodiments of the present invention, the first ganging member 14 has a plurality of positions. These include a fully retracted non-use or storage position wherein the ganging member is mostly hidden. The ganging member is placed in this fully retracted position when the chair is not ganged into a row. The ganging member 14 also has a fully extended position, as shown in FIG. 3, and at least one intermediate partially extended position. In some embodiments, it has two or more intermediate positions. FIG. 4 shows the ganging member 14 in a first intermediate partially extended position. As shown, the ganging member 14 extends from the side 26 of the chair 10 by only a short distance. FIG. 5 shows the ganging member 14 in a second intermediate partially extended position. In this second intermediate position, the ganging device extends farther from the side 26 of the chair 10. FIG. 6 shows the ganging device 14 in a fully extended position.

[0036] Referring to FIG. 6, some embodiments of a ganging member in accordance with the present invention include a drink holder. FIG. 6 illustrates this version of the ganging member. However, this feature may be eliminated from other embodiments. In the illustrated embodiment, the drink holder takes the form of an opening 50 in the upper surface 30 of the ganging member 14. The opening 50 is sized so as to receive a typical drinking cup. In some versions, the opening is 3 to 5 inches in diameter, and generally circular. Referring to both FIGS. 6 and 7, some embodiments of the ganging member 14 including the drink holding feature further include a bottom support 52 for supporting the bottom of a cup disposed in the opening 50. The bottom support 52 may take a variety of forms. In the illustrated embodiment, the support 52 is a thin wire that is pivotally interconnected with the lower surface 32 of the ganging member 14. As the ganging member 14 slides into the support 34, the support 34 causes the bottom support 52 to pivot upwardly so as to be flush with the underside 32 of the ganging member 14. When the ganging member 14 is slid outwardly to the fully extended position, the bottom support 52 pivots downwardly so as to provide support directly below the opening 50.

[0037] In the illustrated embodiment, the ganging member 14 has a pair of slots 54 and 56 extending parallel to one another and parallel to side edges 58 and 60 of the ganging member 14. The side edges 58 and 60 extend between the outer end 36 and an inner end 62 of the ganging device. Pins 62 and 64 engage the slots and act as travel limits for the ganging member 14. In some embodiments, the ganging device 14 may be slid to any position between the fully retracted and fully extended positions and used in any position. However, in preferred embodiments, a detent system is provided for retaining the ganging device in the intermediate positions. For this purpose, recesses 68 and 70 are provided in the side surfaces 58 and 60. Spring loaded detent elements 72 and 74 engage these recesses 68 and 70 when the ganging member is in the first intermediate position and second intermediate position, respectively. This feature helps a user to locate all ganging devices of a row of chairs in the same position so as to provide consistent spacing. The ganging member 14 may be moved to a different position by applying sufficient force to the ganging member to overcome the resistance of the spring loaded detent members 72 and 74.
As best shown in FIGS. 6 and 7, the outer end 36 of the ganging member 14 may be bent downwardly at a small angle and the slot 38 may be provided in this downwardly bent portion. This may simplify ganging of adjacent chairs.

Referring now to FIGS. 8 and 9, the second ganging member 16 is shown. The ganging member 16 has a generally planar body 80 that slides in the support 40 between the retracted position shown in FIG. 8 and the extended position shown in FIG. 9. The tab 44 in the illustrated embodiment extends generally perpendicularly downwardly from the body 80. In the illustrated embodiment, the second ganging member 16 is much smaller than the first ganging member and does not include a drink holder. The second ganging member 16 has a slot 82 defined therein. A pin in the support 40 engages the slot and acts as a travel limit.

FIG. 10 illustrates two like chairs interconnected by a first ganging member 14 and a second ganging member 16. The first ganging member is in the first intermediate position and the second ganging member 16 is in the fully extended position. FIG. 11 illustrates the same chairs interconnected by the ganging members 14 and 16, with ganging member 14 in the second intermediate position. As shown, because the first ganging member 14 extends farther from the side of the chair in the second intermediate position, the chairs are spaced apart by a greater distance in FIG. 11 than in FIG. 10. FIG. 12 illustrates the same chairs and ganging members 14 and 16 with the first ganging member 14 in a fully extended position. In the fully extended position, the chairs are spaced farther apart than in FIG. 11. Additionally, the drink holder feature of the ganging member 14 may be used in this fully extended position.

Referring now to FIGS. 13-20, a second embodiment of a ganging system will be discussed. The second embodiment is similar to the embodiment of FIGS. 1-12. Therefore, the discussion will be mostly limited to features of the second embodiment that differ from the first embodiment. FIG. 13 shows a first chair 110 and a second chair 112. The first chair 110 has a first ganging member 114 extending from a first side of the chair and a second ganging member 116 extending from a second side of the chair. The second chair 112 has a first ganging member 118 extending from a first side of the chair and a second ganging member 120 extending from a second side of the chair. The second ganging member 120 of the second chair 112 is interconnected with the first ganging member 114 of the first chair 110, thereby interlocking the chairs in a side-by-side arrangement. FIG. 14 shows chair 110 in more detail.

FIGS. 15-17 show the first ganging member 114 in more detail. In the illustrated embodiment, the first ganging member 114 is generally planar and is slidably supported by a support 134 that interconnects with the frame of the chair 110. FIG. 15 shows the ganging member 114 in a fully retracted position while FIGS. 16 and 17 show the ganging member 114 in a fully extended position. The ganging member may also have one, two, or more intermediate positions, such as defined by recesses 168 and 170. These recesses may be engaged by spring-loaded detent elements, not shown. Other approaches to retaining the ganging member in various positions may also be used. Unlike the embodiment of FIGS. 1-12, the ganging member 114 does not have slots that engage pins. As with the prior embodiment, the ganging member may have an opening 150 defined therein sized to receive and support a cup, thereby acting as a drink holder. In this embodiment, the opening 150 is formed in a cup holder insert 151 that is recessed into the remainder of the ganging member 114. This allows the use of dissimilar materials. The cup holder insert 151 may have compliant elements 153 that extend inwardly from the perimeter of the opening 150 so as to more securely support cups of various sizes. As best shown in FIG. 17, a bottom support 152 may also be provided, and be pivotally interconnected with the ganging member 114.

In this embodiment, the ganging feature of the ganging member 114 takes the form of a tab 139 that extends generally perpendicularly downwardly from the remainder of the ganging member 114.

Referring now to FIGS. 18 and 19, the second ganging member 116 is shown along with a support 140 that slidably receives the ganging member 116. This ganging member is similar to the second ganging member of the first embodiment except that the ganging feature takes the form of a slot 145 in the body of the ganging member 116. The slot is sized and positioned to receive the downwardly extending tab 139 of the first ganging member 114.

Referring now to FIG. 20, a first ganging member 114 is shown engaged with a second ganging member 120, with each ganging member being in its extended position. In alternative versions of either embodiment of the present invention, the ganging members may be retractable or non-retractable and may be provided with or without cup holder openings. While the invention is illustrated as having a cup holder at only one side of the chair, in one of the ganging members, the cup holder may be provided in either or both ganging members. In further alternatives, the ganging members may be provided with other types and shapes of ganging features for interconnecting like chairs.

As will be clear to those of skill in the art, the herein described embodiments of the present invention may be altered in various ways without departing from the scope or teaching of the present invention. As such, this disclosure should be interpreted broadly. It is the following claims, including all equivalents, which define the scope of the present invention.

1. A ganging system for a chair of the type having a generally horizontal seat supported by four legs, the chair having a first side and a second side, the ganging system comprising:
   a first support interlocked with the chair adjacent the first side of the chair;
   a first ganging member slidably supported by the support, the first ganging member having a retracted position, a fully extended position and at least one intermediate partially extended position, the first ganging member extending from the first side of the chair in the partially extended and fully extended positions;
   a second support interlocked with the chair adjacent the second side of the chair;
   and
   a second ganging member supported by the second support;

   wherein the first ganging member has a ganging feature and the second ganging member has a ganging feature the first ganging feature configured to engage the second ganging feature of a like chair so as to interconnect the chair and the like chair.

2. A ganging system in accordance with claim 1, wherein:
   one of the ganging members has an opening defined therein, the opening sized to receive and hold a drinking cup.
3. A ganging system in accordance with claim 2, wherein: 
the ganging member with the opening defined therein is the 
first ganging member.

4. A ganging system in accordance with claim 2, further 
comprising: 
a bottom support disposed below the opening for support-
ing a bottom of a drinking cup received in the opening.

5. A ganging system in accordance with claim 4, wherein: 
the bottom support is pivotally interconnected with the 
ganging member.

6. A ganging system in accordance with claim 1, wherein: 
the first ganging member has at least one detent defined 
therein; and 
a spring loaded detent element engaging the detent in the 
first ganging member when the ganging member is in the 
partially extended position so as to retain the first gang-
ing member in the partially extended position.

7. A ganging system in accordance with claim 1, wherein: 
the second ganging member is slidably supported by the 
second support, the second ganging member having a 
retracted position and an extended position.

8. A ganging system in accordance with claim 1, wherein: 
one of the ganging features is a tab and the other of the 
ganging features is a slot for receiving the tab of a like 
chair.

9. A ganging system in accordance with claim 8, wherein: 
the slot is a generally horizontal slot and the tab extends 
downwardly.

10. A ganging system for a chair of the type having a 
generally horizontal seat supported by four legs, the chair 
having a first side and a second side, the ganging device 
comprising: 
a ganging member interconnected with one of the sides of 
the chair, the ganging member having a ganging feature 
for engaging a ganging feature of another ganging mem-
er, the ganging member having a drink holder defined 
therein for receiving a drinking cup.

11. A ganging system in accordance with claim 10, 
wherein: 
the drink holder includes a generally circular opening in 
the ganging member.

12. A ganging system in accordance with claim 11, further 
comprising: 
a bottom support disposed below the opening for support-
ing a bottom of a drinking cup received in the opening.