The design of some furniture, however, may seek to maintain a desired aesthetic effect that would prevent an installer or fabricator from merely placing legs or supports in any location necessary to make the article of furniture. For instance, an undesirable location of the legs of a table may detract from the aesthetic effect sought by a particular table design. This may be particularly true for designs for tables that have very large tabletops, such as tabletops that have an area of at least forty-five square feet. It should be appreciated that such an undesirable location may be necessary for some manufacturers due to tolerance problems or other issues associated with mass producing an article of furniture in accordance with a particular design.

A new leg or support attachment device is needed that may permit the manufacture of an article of furniture to be achieved such that the furniture is able to be produced using mass production technologies while also permitting the article of furniture to be fabricated so that a desired aesthetic effect is not negatively impacted from the changes needed to the design to account for tolerance of manufacturing issues or other design implementation problems associated with mass manufacturing.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, ~~A~~an article of furniture, such as a table, is provided. The article of furniture may include a work surface having an upper face and a bottom face opposite the upper face. The article may also include a plurality of members. Each of the members extends along the bottom face. Each of the members has a first end, a second end opposite the first end, and a channel. The first end has a first aperture. The channel extends through the first end. The article also includes a plurality of legs and a plurality of attachment devices. Each of the attachment devices attaches a respective one of the legs to one of the members such that each of the members is attached to at least one of the legs. Each of the attachment devices comprises a first body and a second body.

The first body has a second aperture and a third aperture. The first body is moveable within the channel of the member to which the attachment device is attached. A first fastener extends through the second aperture of the first body and through the first aperture of the member to which the attachment device is attached such that the first body is moveable within the channel of the member along a length of one of the first aperture and the second aperture until the first fastener is tightened sufficiently to immovably affix the first body to the member to which the attachment device is attached. The second body has a fourth aperture that is alignable with the third aperture. The second body is attached to a respective one of the legs. A second fastener extends through the third aperture and the fourth aperture such that the second body is moveable along a length of one of the third aperture and the fourth aperture until the second fastener is tightened sufficiently to immovably affix the first body to the second body. The movement of the second body relative to the first body is a rotational movement and the movement of the first body in the channel is a substantially linear movement and wherein one of the third aperture and the fourth aperture is a slot having a length extending in a first direction and one of the first aperture and second aperture is a slot having a length extending in a second direction that is transverse to the first direction.

According to a second aspect of the present invention, there is provided an article of furniture comprising: a work surface having an upper face and a bottom face opposite the upper face; a plurality of members, each of the members extending along the bottom face, each of the members having a first end, a second end opposite the first end, and a channel, the first end having first aperture, the channel extending through the first end; a plurality of legs; and a plurality of attachment devices, each of the attachment devices attaching a respective one of the legs to one of the members such that each of the members is attached to at least one of the legs, each of the attachment devices comprising: a first body, the first body having a second aperture and a third aperture, the first body moveable within the channel of the member to which the attachment device is attached, a first fastener, the first fastener extending through the second aperture of the first body and through the first

aperture of the member to which the attachment device is attached such that the first body is moveable within the channel of the member along a length of one of the first aperture and the second aperture until the first fastener is tightened sufficiently to immovably affix the first body to the member to which the attachment device is attached, a second body having a fourth aperture that is alignable with the third aperture, the second body attached to a respective one of the legs, a second fastener, the second fastener extending through the third aperture and the fourth aperture such that the second body is moveable along a length of one of the third aperture and the fourth aperture until the second fastener is tightened sufficiently to immovably affix the first body to the second body, the movement of the second body relative to the first body being a rotational movement and the movement of the first body in the channel being a substantially linear movement; and wherein one of the third aperture and the fourth aperture is a slot having a length extending in a first direction and one of the first aperture and second aperture is a slot having a length extending in a second direction that is transverse to the first direction.

According to a third aspect of the present invention, there is provided an article of furniture comprising: a work surface having an upper face and a bottom face opposite the upper face; a plurality of members, each of the members extending along the bottom face, each of the members having a first end, a second end opposite the first end, and a channel, the first end having first aperture, the channel extending through the first end; a plurality of legs; and a plurality of attachment devices, each of the attachment devices attaching a respective one of the legs to one of the members such that each of the members is attached to at least one of the legs, each of the attachment devices comprising: a first body, the first body having a second aperture and a third aperture, the first body moveable within the channel of the member to which the attachment device is attached, a first fastener, the first fastener extending through the second aperture of the first body and through the first aperture of the member to which the attachment device is attached such that the first body is moveable within the channel of the member along a length of one of the first aperture and the second aperture until the first fastener is tightened sufficiently to immovably affix the first body to the member to

which the attachment device is attached, a second body having a fourth aperture that is alignable with the third aperture, the second body attached to a respective one of the legs, a second fastener, the second fastener extending through the third aperture and the fourth aperture such that the second body is moveable along a length of one of the third aperture and the fourth aperture until the second fastener is tightened sufficiently to immovably affix the first body to the second body, the movement of the second body relative to the first body being a rotational movement and the movement of the first body in the channel being a substantially linear movement; and wherein the first body has a first end and a second end opposite the first end, the second end of the first body being attached to the second body via the second fastener, and wherein the first body is tapered such that the first end of the first body is narrower than the second end of the first body.

According to a fourth aspect, there is provided an article of furniture comprising: a work surface having an upper face and a bottom face opposite the upper face; a plurality of members, each of the members extending along the bottom face, each of the members having a first end, a second end opposite the first end, and a channel, the first end having first aperture, the channel extending through the first end; a plurality of legs; and a plurality of attachment devices, each of the attachment devices attaching a respective one of the legs to one of the members such that each of the members is attached to at least one of the legs, each of the attachment devices comprising: a first body, the first body having a second aperture and a third aperture, the first body moveable within the channel of the member to which the attachment device is attached, a first fastener, the first fastener extending through the second aperture of the first body and through the first aperture of the member to which the attachment device is attached such that the first body is moveable within the channel of the member along a length of one of the first aperture and the second aperture until the first fastener is tightened sufficiently to immovably affix the first body to the member to which the attachment device is attached, a second body having a fourth aperture that is alignable with the third aperture, the second body attached to a respective one of the legs, a second fastener, the second fastener extending through the third aperture and the fourth aperture such that the second body is moveable along a length of one

of the third aperture and the fourth aperture until the second fastener is tightened sufficiently to immovably affix the first body to the second body, the movement of the second body relative to the first body being a rotational movement and the movement of the first body in the channel being a substantially linear movement; and wherein the members are cross braces.

According to a fifth aspect, there is provided an article of furniture comprising: a work surface having an upper face and a bottom face opposite the upper face; a plurality of members, each of the members extending along the bottom face, each of the members having a first end, a second end opposite the first end, and a channel, the first end having first aperture, the channel extending through the first end; a plurality of legs; and a plurality of attachment devices, each of the attachment devices attaching a respective one of the legs to one of the members such that each of the members is attached to at least one of the legs, each of the attachment devices comprising: a first body, the first body having a second aperture and a third aperture, the first body moveable within the channel of the member to which the attachment device is attached, a first fastener, the first fastener extending through the second aperture of the first body and through the first aperture of the member to which the attachment device is attached such that the first body is moveable within the channel of the member along a length of one of the first aperture and the second aperture until the first fastener is tightened sufficiently to immovably affix the first body to the member to which the attachment device is attached, a second body having a fourth aperture that is alignable with the third aperture, the second body attached to a respective one of the legs, a second fastener, the second fastener extending through the third aperture and the fourth aperture such that the second body is moveable along a length of one of the third aperture and the fourth aperture until the second fastener is tightened sufficiently to immovably affix the first body to the second body, the movement of the second body relative to the first body being a rotational movement and the movement of the first body in the channel being a substantially linear movement; and wherein the work surface is a tabletop having a first edge, a second edge, a third edge and a fourth edge; the table further comprising: a first trim member attached

to the first edge; a second trim member attached to the second edge; a third trim member attached to the third edge; a fourth trim member attached to the fourth edge; a first corner member attached to the second body of one of the attachment devices such that the first corner member is positioned adjacent to the first and second edges between the first and second trim members; a second corner member attached to the second body of one of the attachment devices such that the second corner member is positioned adjacent to the second and third edges between the second and third trim members; a third corner member attached to the second body of one of the attachment devices such that the third corner member is positioned adjacent to the third and fourth edges between the third and fourth trim members; and a fourth corner member attached to the second body of one of the attachment devices such that the fourth corner member is positioned adjacent to the fourth and first edges between the first and fourth trim members.

Examples of an article of furniture may include a chair, a table, or a desk. It should be understood that the upper face of the work surface may be substantially flat in some embodiments. Of course, the bottom face may also be substantially flat in some embodiments.

The substantially linear movement may be a straight movement or a substantially straight movement (e.g. substantially forward, substantially rearward, or substantially sideward). The rotational movement may be a clockwise movement, a counter clockwise movement, or include a combination of both clockwise movement and counter clockwise movement.

At least one of the third aperture of the first body and fourth aperture of the second body of the attachment device may be a slot that has a length that extends in a first direction. At least one of the first aperture of the member and the second aperture of the first body may be a slot

corner member may be attached to the second body of one of the attachment devices so it is positioned adjacent to the first and second edges between the first and second trim members. A second corner member may be may be attached to the second body of one of the attachment devices so it is positioned adjacent to the second and third edges between the second and third trim members. A third corner member may be attached to the second body of one of the attachment devices so it is positioned adjacent to the third and fourth edges between the third and fourth trim members. A fourth corner member may be attached to the second body of one of the attachment devices so it is positioned adjacent to the first and fourth edges between the first and fourth trim members.

According to a sixth aspect of the present invention, a~~A~~ method of installing or fabricating a table is also provided. The method includes the steps of attaching a member to a bottom surface of a tabletop such that the member extends along the bottom surface, the member having a channel and a first aperture~~,~~; placing a first body of an attachment device into a channel of the member, positioning a fastener extending through a second aperture of the first body of the attachment device through a first aperture of the member, and moving a portion of the first body within the channel along a length of one of the first aperture and the second aperture. Movement of the first body along the length of the one of the first aperture and second aperture may be a substantially straight path of movement. The method may also include the step of aligning a second body of the attachment device having a fourth aperture with a third aperture in the first body of the attachment device. One of the third aperture and the fourth aperture may have a length oriented transverse to the length of the one of the first aperture and the second aperture. The method may also include the steps of positioning a second fastener through the third aperture and the fourth aperture, and moving the second body along the length of the one of the third aperture and fourth aperture. The movement of the second body along the length of the one

of the third aperture and fourth aperture may be a rotational movement relative to the first body. The method may also include the steps of attaching a leg to the second body, positioning the first and second body to a desired predefined position adjacent to the tabletop, tightening the first fastener until the first fastener immovably affixes the first body to the member, and tightening the second fastener until the second fastener immovably affixes the first body to the second body and attaching trim around an outer periphery of the tabletop, wherein the second fastener is tightened before the first fastener is tightened, and wherein the first body has a first end and a second end opposite the first end, the second end of the first body being attached to the second body via the second fastener, and wherein the first body is tapered such that the first end of the first body is narrower than the second end of the first body.

According to a seventh aspect of the present invention, there is provided a method of installing or fabricating a table comprising: attaching a member to a bottom surface of a tabletop such that the member extends along the bottom surface, the member having a channel and a first aperture; placing a first body of an attachment device into the channel of the member; positioning a fastener extending through a second aperture of the first body of the attachment device through the first aperture of the member; moving a portion of the first body within the channel along a length of one of the first aperture and the second aperture, movement of the first body along the length of the one of the first aperture and second aperture being a substantially straight path of movement; aligning a second body of the attachment device having a fourth aperture with a third aperture in the first body of the attachment device, one of the third aperture and the fourth aperture having a length oriented transverse to the length of the one of the first aperture and the second aperture, positioning a second fastener through the third aperture and the fourth aperture; moving the second body along the length of the one of the third aperture and fourth aperture; the movement of the second body along the length of the one of the third aperture and fourth aperture being a rotational movement relative to the first body; attaching a leg to the second body; positioning the first and second body to a desired predefined position adjacent to the tabletop; tightening the first fastener until the first fastener immovably affixes

the first body to the member; and tightening the second fastener until the second fastener immovably affixes the first body to the second body, wherein the second fastener is tightened before the first fastener is tightened, and wherein one of the third aperture and the fourth aperture is a slot having a length extending in a first direction and one of the first aperture and second aperture is a slot having a length extending in a second direction that is perpendicular or transverse to the first direction.

Other details, objects, and advantages of the invention will become apparent as the following description of certain present preferred embodiments thereof and certain present preferred methods of practicing the same proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

Present preferred embodiments of furniture, fastening apparatus for interconnecting furniture components and methods of making and practicing the same are shown in the accompanying drawings. It should be appreciated that like components or like parts may be indicated by the same reference number throughout the different drawings.

Figure 1 is an isometric view of a first present preferred embodiment of a table.

Figure 2 is a bottom view of the first present preferred embodiment of a table.

Figure 3 is a top view of a second present preferred embodiment of a table with the tabletop shown in broken line to illustrate components of the table located below the tabletop.

Figure 4 is an exploded view of the second present preferred embodiment of the table.

Figure 5 is a fragmentary view of the second present preferred embodiment of the table.

Figure 6 is an exploded view of a leg attached to an attachment device that may be utilized in embodiments of the table.