SUMMARY OF INVENTION

~~A fastening apparatus for interconnecting different furniture components of a furniture system is provided that includes at least one fastening device. The one or more fastening devices may include a body and at least one of a connector assembly and an opening formed in the body. The one or more fastening devices may include a body that at least partially defines a first channel that is sized and configured to receive a first elongated rail of a first furniture component. The first elongated rail has a length that defines a longest dimension of the first elongated rail. The first channel is sized and configured to receive and hold a portion of the first elongated rail so that the first elongated rail is positionable in a substantially horizontal position to support at least a portion of a first work surface. The connector assembly may be attached to the body and may have one or more elements that are sized and configured to attach to a second furniture component so that the second furniture component is positionable such that at least one of a length of the second furniture component and a height of the second furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail when that rail is in a substantially horizontal position. The opening formed in the body may be below the first channel and is sized and configured to receive a portion of a third furniture component so that the third furniture component is positionable such that at least one of a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail when the first elongated rail is in a substantially horizontal position~~According to a first aspect of the present invention, there is provided a fastening apparatus for interconnecting different furniture components of a furniture system comprising:

a plurality of fastening devices comprising a first fastening device and a second fastening device, the first fastening device having a first body at least partially defining a first channel, the first channel sized and configured to receive a first elongated rail of a first furniture component, the first elongated rail having a length that defines a longest dimension of the first elongated rail, the

first channel sized and configured to receive and hold a portion of the first elongated rail such that the first elongated rail is positionable in a substantially horizontal position or horizontal position to support at least a portion of a first work surface, and

the first fastening device also having a connector assembly, the connector assembly attached to the first body of the first fastening device, the connector assembly having at least one element sized and configured to attach to a second furniture component such that the second furniture component is positionable so that at least one of a length of the second furniture component and a height of the second furniture component extends in a direction that is substantially perpendicular or perpendicular to the length of the first elongated rail when the first elongated rail is in the substantially horizontal position or horizontal position;

the second fastening device having a second body at least partially defining a second channel, the second channel of the second fastening device sized and configured to receive the first elongated rail of the first furniture component, the second channel of the second fastening device being sized and configured to receive and hold a portion of the first elongated rail such that the first elongated rail is positionable in the substantially horizontal position or horizontal position to support at least a portion of the first work surface, and

the second fastening device also having an opening formed in the second body of the second fastening device, the opening formed in the second body of the second fastening device being below the second channel of the second fastening device and being sized and configured to receive a portion of a third furniture component such that the third furniture component is positionable so that at least one of a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular or perpendicular to the length of the first elongated rail when the first elongated rail is in the substantially horizontal position or horizontal position; and

at least one jaw connector, each jaw connector comprising an upper jaw portion, a lower jaw portion and a rail receiving portion, the upper jaw portion spaced apart from the lower jaw

portion such that a portion of the first elongated rail is receivable between the upper jaw portion and the lower jaw portion, the upper jaw portion and lower jaw portion being attached to the rail receiving portion, the rail receiving portion having an opening sized and configured to receive an end portion of a second elongated rail, the second elongated rail having a length that defines a longest dimension of the second elongated rail, the end portion of the second elongated rail being receivable within the opening of the rail receiving portion such that the length of the second elongated rail extends in a direction that is perpendicular or substantially perpendicular to the length of the first elongated rail, the end portion of the second elongated rail being positionable in the opening of the rail receiving portion such that the second elongated rail is positionable in a substantially horizontal position or a horizontal position to support at least a portion of a second work surface .

It should be appreciated that embodiments of the fastening apparatus may include one or more fastening devices that only include a connector assembly or only include an opening formed in the body. Of course, it is contemplated that other embodiments of the one or more

one or more clamping members. An exterior surface of that covering member or plate member may be sized and configured to support a portion of the first work surface. That exterior surface of the cover plate may be a friction inducing surface for supporting and positioning the first work surface. In alternative embodiments, an upper portion of each clamping member may be sized and configured for directly engaging and supporting a work surface.

In some embodiments, the connector assembly may be a member sized and configured for positioning between the body and the second furniture component for attachment to the second furniture component. At least one fastener may also be positioned within the second furniture component and the member to attach the member to the second furniture component. That one or more fastener may include a plurality of magnets or may be one or more bolts or screws or an adhesive.

~~A method of assembling furniture for a work space is also provided. A plurality of first elongated rails may be provided. Each first rail has a length that defines a longest dimension of that rail. A plurality of fastening devices may also be provided. Each fastening device may include a body and at least one of a connector assembly and an opening formed in the body below the first channel. The body may have a first channel sized and configured to receive a portion of one of the first elongated rails. The first channel may be sized and configured to hold a portion of the first elongated rail so that the first elongated rail is positioned in a substantially horizontal position to support at least a portion of a first work surface. The connector assembly may be attached to the body and have one or more elements sized and configured to attach to a second furniture component such that the second furniture component is positionable so that at least one of a length of the second furniture component and a height of the second furniture component extends in a direction that is substantially perpendicular or perpendicular to the length of the first rail when the first rail is in the~~

~~substantially horizontal or horizontal position. The opening formed in the body may be sized and configured to receive a portion of a third furniture component so that the third furniture component is positionable so that at least one of a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail when the first elongated rail is in the substantially horizontal position. The first rails may be positioned so that a portion of each first elongated rail is positioned in the first channel of a respective fastening device of the plurality of fastening devices. A first work surface may be positioned so that the first work surface is at least partially supported by the first rails. At least one of the second furniture component and third furniture component may be attached to at least one of the fastening devices so that at least one of a length of the second furniture component and a height of the second furniture component, a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rails.~~According to a second aspect of the present invention, there is provided a method of assembling furniture for a work space comprising:

providing a plurality of first elongated rails, each first elongated rail having a length that defines a longest dimension of that elongated rail,

providing a plurality of fastening devices for interconnecting different furniture components, the fastening devices comprising:

a first fastening device having a first body at least partially defining a first channel, the first channel sized and configured to receive a portion of one of the first elongated rails, the first channel sized and configured to receive and hold a portion of the first elongated rail such that the first elongated rail is positionable in a substantially horizontal position to support at least a portion of a first work surface, the first fastening device also having a connector assembly, the connector assembly attached to the first body, the connector assembly having at least one element sized and configured to attach to a second furniture component such that the second furniture component is positionable so that at least one of a length of the second furniture component and a height of the second furniture component

extends in a direction that is substantially perpendicular to the length of the first elongated rail when the first elongated rail is in the substantially horizontal position, and

a second fastening device having a second body at least partially defining a second channel, the second channel of the second fastening device sized and configured to receive a portion of one of the first elongated rails, the second channel sized and configured to receive and hold a portion of the first elongated rail such that the first elongated rail is positionable in the substantially horizontal position to support at least a portion of the first work surface,

the second fastening device also having an opening formed in a second body of the second fastening device, the opening formed in the second body of the second fastening device being below the second channel and being sized and configured to receive a portion of a third furniture component such that the third furniture component is positionable so that at least one of a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail when the first elongated rail is in the substantially horizontal position,

positioning the first elongated rails such that a portion of one of the first elongated rails is positioned in the first channel of the first fastening device and a portion of that elongated rail is positioned in the second channel of the second fastening device;

positioning a first work surface such that the first work surface is at least partially supported by the first elongated rails;

attaching the second furniture component to the first fastening device and the third furniture component to the second fastening device via the connector assembly and the opening formed in the second body so that at least one of a length of the second furniture component and a height of the second furniture component extends in a direction that is perpendicular or substantially perpendicular to the length of the first elongated rails and at least one of a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rails;

providing at least one jaw connector, each jaw connector comprising an upper jaw portion, a lower jaw portion and a rail receiving portion, the upper jaw portion spaced apart from the lower jaw portion such that that a portion of one of the first elongated rails is receivable between the upper jaw portion and the lower jaw portion, the upper jaw portion and lower jaw portion being attached to the rail receiving portion, the rail receiving portion having an opening sized and configured to receive an end portion of a second elongated rail, the second elongated rail having a length that defines a longest dimension of the second elongated rail, the end portion of the second elongated rail being receivable within the opening of the rail receiving portion such that the length of the second elongated rail extends in a direction that is perpendicular to the length of the first elongated rails, the end portion of the second elongated rail being positionable in the opening of the rail receiving portion such that the second elongated rail is positionable in a substantially horizontal position to support at least a portion of a second work surface;

attaching at least one second elongated rail to the receiving portion of the at least one jaw connector; and

positioning a second work surface over the at least one second rail such that a side of the second work surface is adjacent to or abuts a side of the first work surface.

The second furniture component may be a panel or a drawer unit or a support assembly. The third furniture component may be a panel or a drawer unit or a support assembly. Of course, the second furniture component and third furniture component may also be other furniture or other portions of furniture.

It should be appreciated that the connector assembly may include any of a number of configurations such as embodiments discussed above or other variations to such embodiments. The opening formed in the body may also include any of a number of configurations for receiving or holding portions of furniture.

Preferably, each rail has a rectangular or square cross section. Of course, rails may have other polygonal shaped cross sections or have circular, elliptical or other curved cross sections as well.

Embodiments of the method may also include providing one or more jaw connector, attaching at least one second elongated rail to the one or more jaw connectors and positioning a second work surface over the one or more second rails so that a side of the second work surface is adjacent to or abuts a side of the first work surface.

~~A furniture system is also provided. The furniture system may include a first elongated rail, a first furniture component, a first work surface and one or more fastening devices. One or more brackets and one or more jaw connectors may also be provided in embodiments of the system.~~According to a third aspect of the present invention, there is provided a furniture system comprising:

a first elongated rail of a first furniture component, the first elongated rail having a length that defines a longest dimension of the first elongated rail;

a plurality of fastening devices comprising a first fastening device and a second fastening device, the first fastening device having a first body at least partially defining a first channel, the first channel sized and configured to receive a first end portion of the first elongated rail, the first channel sized and configured to receive and hold the first end portion of the first elongated rail such that that first elongated rail is positioned in a substantially horizontal position to support at least a portion of a first work surface;

the first fastening device also having a connector assembly attached to the first body, the connector assembly having at least one element sized and configured to attach to a second furniture component such that the second furniture component is positioned so that at least one of a length of the second furniture component and a height of the second furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail; and

a second fastening device having a second body at least partially defining a second channel, the second channel of the second fastening device sized and configured to receive a second end portion of the second elongated rail, the second channel of the second fastening device sized and

configured to receive and hold the second end portion of the first elongated rail such that that first elongated rail is positioned in the substantially horizontal position to support at least a portion of the first work surface,

the second body of the second fastening device also having an opening formed in the second body of the second fastening device, the opening formed in the second body of the second fastening device being below the second channel of the second fastening device and being sized and configured to receive a portion of a third furniture component such that the third furniture component is positionable so that at least one of a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail; and

the first work surface being at least partially supported by the first rail:

at least one second elongated rail, each of the at least one second elongated rail having a length that defines a longest dimension of that second elongated rail; and

at least one jaw connector, each jaw connector comprising an upper jaw portion, a lower jaw portion and a rail receiving portion, the upper jaw portion spaced apart from the lower jaw portion such that that a portion of the first elongated rail is received between the upper jaw portion and the lower jaw portion, the upper jaw portion and lower jaw portion being attached to the rail receiving portion, the rail receiving portion having an opening sized and configured to receive an end portion of the at least one second elongated rail, the end portion of the at least one second elongated rail being received within the opening of the rail receiving portion such that the length of the at least one second elongated rail extends in a direction that is perpendicular to the length of the first elongated rail, the end portion of the at least one second elongated rail being positioned in the opening of the rail receiving portion such that the at least one second elongated rail is positioned in a substantially horizontal position to support at least a portion of a second work surface; and

the second work surface supported on the at least one second rail adjacent to the first work surface.

According to a fourth aspect of the present invention, there is provided a furniture system comprising:

a first elongated rail of a first furniture component, the first elongated rail having a length that defines a longest dimension of the first elongated rail;

a plurality of fastening device comprising a first fastening device and a second fastening device, the first fastening device having a first body at least partially defining a first channel, the first channel sized and configured to receive a first end portion of the first elongated rail, the first channel sized and configured to receive and hold the first end portion of the first elongated rail such that that first elongated rail is positioned in a substantially horizontal position to support at least a portion of a first work surface;

the first fastening device also having a connector assembly attached to the first body, the connector assembly having at least one element sized and configured to attach to a second furniture component such that the second furniture component is positioned so that at least one of a length of the second furniture component and a height of the second furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail; and

the second fastening device having a second body at least partially defining a second channel, the second channel of the second fastening device sized and configured to receive a second end portion of the first elongated rail, the second channel of the second fastening device sized and configured to receive and hold the second end portion of the first elongated rail such that that first elongated rail is positioned in the substantially horizontal position to support at least a portion of the first work surface,

the second body of the second fastening device also having an opening formed in the second body of the second fastening device, the opening formed in the second body of the second

fastening device being below the second channel of the second fastening device and being sized and configured to receive a portion of a third furniture component such that the third furniture component is positionable so that at least one of a length of the third furniture component and a height of the third furniture component extends in a direction that is substantially perpendicular to the length of the first elongated rail; and

the first work surface being at least partially supported by the first rail;

a first jaw connector comprising an upper jaw portion, a lower jaw portion and a rail receiving portion, the upper jaw portion spaced apart from the lower jaw portion such that a portion of the first elongated rail is receivable between the upper jaw portion and the lower jaw portion, the upper jaw portion and lower jaw portion being attached to the rail receiving portion, the rail receiving portion having an opening sized and configured to receive an end portion of a second elongated rail to retain that end portion, the second elongated rail having a length that defines a longest dimension of the second elongated rail, the end portion of the second elongated rail being receivable within the opening of the rail receiving portion of the first jaw connector such that the length of the second elongated rail extends in a direction that is perpendicular or substantially perpendicular to the length of the first elongated rail, the end portion of the second elongated rail being positionable in the opening of the rail receiving portion of the first jaw connector such that the second elongated rail is positionable in a substantially horizontal position or a horizontal position to support at least a portion of a second work surface; and

a second jaw connector comprising an upper jaw portion, a lower jaw portion and a rail receiving portion, the upper jaw portion of the second jaw connector spaced apart from the lower jaw portion of the second jaw connector such that a portion of the first elongated rail is receivable between the upper jaw portion and the lower jaw portion of the second jaw connector, the upper jaw portion and lower jaw portion of the second jaw connector being attached to the rail receiving portion of the second jaw connector, the rail receiving portion of the second jaw connector having an opening sized and configured to receive an end portion of a third elongated rail to retain that

end portion, the third elongated rail having a length that defines a longest dimension of the third elongated rail, the end portion of the third elongated rail being receivable within the opening of the rail receiving portion of the second jaw connector such that the length of the third elongated rail extends in a direction that is perpendicular or substantially perpendicular to the length of the first elongated rail, the end portion of the third elongated rail being positionable in the opening of the rail receiving portion of the second jaw connector such that the third elongated rail is positionable in a substantially horizontal position or a horizontal position to support at least a portion of the second work surface.

The brackets that may be used in some embodiments of the furniture system may each include a body that defines an aperture that is sized and configured to receive and hold a portion of a first elongated rail to support a furniture component from the first rail when that furniture component is attached to the one or more brackets and those one or more brackets are positioned on the first rail.

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 our fŏurniture system, 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 exploded view of a first present preferred system of furniture illustrating a present preferred work space being interconnected to a present preferred panel. It should be appreciated that the panel may include a wire management channel located