A modular pedestrian bridge (10) is disclosed. In its simplest form, the bridge (10) includes: a span module (12) having a tunnel (14) sufficient to allow pedestrians to travel through the tunnel (14), the tunnel (14) being defined by a floor (16) and a top (18), defining a height (20), sides (22) defining a width (24) and upper and lower connectors (26) and (28), a tower module (30), a stair assembly (32), the tunnel (14) having sufficient dimensions to allow the tower module (30) to be telescopically fit into the tunnel (14) and the span module (12) being adapted to fit on a chassis or flat bed truck of a vehicle. The bridge (10) is configured to simplify assembly and disassembly and is adapted to fit on a chassis, flat bed truck and the like. The span module (12) is dimensioned, such that it does not have special freight requirements, possibly triggering state and federal escort laws for extra wide or long loads.
MODULAR PEDESTRIAN BRIDGE AND SYSTEM

FIELD OF THE INVENTION

[0001] This invention relates to bridges, and more particularly to a modular pedestrian bridge and system.

BACKGROUND OF THE INVENTION

[0002] It is advantageous to provide the ability for pedestrian and handicapped traffic to safely and comfortably cross over a potentially dangerous area, such as a road, creek, railroad tracks, construction site or the like. Pedestrian access of this type is frequently required at popular or well attended events, such as sporting events like automobile racing, golf tournaments and marathons, for example. Existing known pedestrian bridges are generally cumbersome and time-consuming to erect, difficult to transport and not particularly portable or repeatable.

[0003] There is a need for a modular pedestrian bridge and its components that: allow for flexibility in configuration; comprise modular components that are easy to align, assemble and disassemble, and are portable and transportable; provide stair and height flexibility and adjustment; meet public safety standards; provide cost effective freight expenses; and have minimal storage requirements. Further, there is a need for a modular bridge system that allows for compact packaging and temporary storage of components, and is particularly adapted to being easily transported on a conventional flat bed trailer or chassis.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 is an elevated plan view of a Modular Pedestrian Bridge, in accordance with the instant invention.

[0005] FIG. 2 is a top view of the Modular Pedestrian Bridge showing four spans with an intermediate supporting tower module, in accordance with the instant invention.

[0006] FIG. 3 is an enlarged plan view of the Modular Pedestrian Bridge along lines DD-DD (between the stairs on the left) in FIG. 2, showing a platform walkway and a partial view of the lower and upper stairwells, in accordance with the instant invention.

[0007] FIG. 4 is an enlarged plan view of the Modular Pedestrian Bridge along lines EE-EE in FIG. 2, showing a platform walkway between a partial view of the upper stairwell and span, in accordance with the instant invention.

[0008] FIG. 5 is an enlarged plan view of the Modular Pedestrian Bridge along lines S-S in FIG. 1, showing an upper view showing a connection region where two spans connect, in accordance with the instant invention.

[0009] FIG. 6 is an enlarged partial perspective view of the Modular Pedestrian Bridge along lines R-R in FIG. 1, in accordance with the instant invention.

[0010] FIG. 7 is an enlarged perspective view of the Modular Pedestrian Bridge in FIG. 5, showing an upper view illustrating a connection region where two spans connect and placement of twist lock receptacles, in accordance with the instant invention.

[0011] FIG. 8 is an enlarged cut away view of region X of the Modular Pedestrian Bridge in FIG. 7, showing a partial view of the connection region where two spans connect, in accordance with the instant invention.

[0012] FIG. 9 is an enlarged cut away of the Modular Pedestrian Bridge in FIG. 1, showing a partial view of a center tower supporting a connection region where two spans connect, in accordance with the instant invention.

[0013] FIG. 10 is an enlarged plan view of the Modular Pedestrian Bridge along lines U-U in FIG. 1, showing the center tower supporting a span, in accordance with the instant invention.

[0014] FIG. 11 is an enlarged perspective view of an in box connector or receptacle above a twist lock, of the Modular Pedestrian Bridge, in accordance with the instant invention.

[0015] FIG. 12 is an enlarged plan view of components of the Modular Pedestrian Bridge, shown disassembled on a fifty three foot flat bed truck, with a tower module telescopically placed within a span module and ready to be transported or unloaded, in accordance with the instant invention.

[0016] FIG. 13 is an enlarged top view of the Modular Pedestrian Bridge, shown in FIG. 12, in accordance with the instant invention.

[0017] FIG. 14 is an enlarged rear view of the Modular Pedestrian Bridge, shown in FIG. 12, in accordance with the instant invention.

[0018] FIG. 15 is an enlarged plan view of components of the Modular Pedestrian Bridge, shown disassembled on a second, fifty three foot flat bed truck, ready to be transported or unloaded, in accordance with the instant invention.

[0019] FIGS. 16 and 17 are enlarged plan and rear views of components of the Modular Pedestrian Bridge, shown disassembled on a third, fifty three foot flat bed truck, ready to be transported or unloaded, in accordance with the instant invention.

[0020] FIG. 18 is a perspective view of the Modular Pedestrian Bridge in FIG. 1, showing an end tower with pockets for receiving forks of a fork lift and extenders, in accordance with the instant invention.

[0021] FIG. 19 is a perspective view of the Modular Pedestrian Bridge in FIG. 18, showing a cut-away lower portion of a tower module, illustrating the telescopic height adjustment feature including an inner tube, an outer tube, aligned apertures at various distances from the foot for receiving bolts in the inner and outer tubes, height adjusting bolts and clamping structure with clamping bolts with associated apertures, in accordance with the instant invention.

[0022] FIG. 20 is a partial view of a Modular Pedestrian Bridge, illustrating three stair configurations, including a straight egress, a modified ninety degree egress and a straight ninety degree egress, in accordance with the instant invention.

[0023] FIG. 21 is an elevated plan view of a Modular Pedestrian Bridge, without a center tower, in accordance with the instant invention.

[0024] FIG. 22 is a flow diagram of a Modular Pedestrian Bridge System, in accordance with the instant invention. Discuss and illustrate connectors and plates around the tunnel (placed at top, bottom and sides) combine to transfer vertical, horizontal, lateral and twisting forces between adjacent spans, to reinforce and form a unitary span module with structural integrity.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0025] Referring to FIGS. 1 and 2, a Modular Pedestrian Bridge 10 is shown. In its simplest form, the modular pedestrian bridge 10 includes: a span module 12 having a tunnel 14 sufficient to allow pedestrians to travel through the tunnel 14, the tunnel 14 being defined by a floor 16 and a top 18, defining a height 20, sides 22 defining a width 24 and upper and lower
connectors 26 and 28 (FIG. 7), a tower module 30, a stair assembly 32, the tunnel 14 having sufficient dimensions to allow the tower module 30 to be telescopically fit into the tunnel 14 and the span module 12 being adapted to fit on a chassis or flat bed truck of a vehicle.

[0026] The modular pedestrian bridge 10 is designed and configured to significantly simplify and reduce the cycle time in assembly and disassembly. In addition, the dimensions of the components are specially configured such that a conventional chassis, flat bed truck and the like, can be utilized to support and haul the bridge 10 when disassembled, to various desired locations, such as in rental applications. Advantageously, the span module 12 is dimensioned such that it is unnecessary to have an extra wide or extra long load, possibly triggering additional freight expenses.

[0027] Conventional known bridges that are in existence today, do no have any or all of the outlined advantages and structure detailed herein.

[0028] As should be understood by those skilled in the art, the stair or ramp assembly 32 has the capability of being configured in a substantially perpendicular orientation with respect to the span module 12 (see FIG. 20 for various stair configurations), depending on the available real estate and application. As should be understood by those skilled in the art, the size, design and location and layout, may vary widely depending on the available space. Thus, the bridge 10 and components and connections are designed and particularly adapted to maximize modularity and flexibility, for improved space utilization and simplicity in assembly.

[0029] As shown in FIGS. 1, 3 and 4, in one embodiment, the floor 16 of the span module 12 and platform walkways 104, respectively, have elongated pockets 34 strategically positioned in proximity to the middle, spaced and complementarily configured to be received by a fork of a fork lift, for balanced and simplified lifting, placement and transporting, during assembly and disassembly. Likewise, in FIG. 18, a tower pocket 34 is shown for simplified fork lifting.

[0030] As best illustrated in FIGS. 6 and 7, a proximal side 25 of the long span 12 is shown, the upper connector 26 includes two outwardly extending members 36 each having a hole 38, and the lower connector 28 including an outwardly extending member 40 with a hole 42. The upper and lower connectors 26 and 28 are complementarily configured to be connectible with and at least partially received in a second adjacent span module, as illustrated in FIGS. 5-8. A distal side 27 in FIGS. 1 and 2 is also shown, and can be complementarily configured with respect to the proximal side 25, for simple connection and disconnection to adjacent spans, for example. As should be understood by those skilled in the art, the sides and connectors can be reversed. As illustrated in FIG. 5, a force transferring or guide plate 44 with strategically positioned holes 46, shown below the floor, can provide assistance in aligning adjacent spans.

[0031] More importantly, in a preferred embodiment, plates 44 are configured and connected (by bolts) substantially completely around the tunnel 14, which includes at the floor 16, top 18 and sides 22, to transfer vertical, horizontal and angled forces between adjacent spans, such that connected spans form a single or unitary structure, with reliable structural integrity throughout the connected spans, including at the connection points and interfaces.

[0032] The span module 12 further includes strategically positioned and spaced vertical, angled and horizontal supporting structure 48, 50 and 52, in FIG. 7. The span module 12 has the structural integrity to support many people crossing as well as it has loop structures 54 with a hole 56 at or near the sides 25 and 27, to receive a hook of a crane (FIG. 6), to facilitate lifting and placement, for example.

[0033] Referring to FIG. 6, a pin 58 with a cotter or holding pin 59 is shown, to securely connect distal and proximal sides 27 and 25 to adjacent span modules 12 or other components. In a preferred embodiment, this structure is utilized and connected, for enhanced reliability.

[0034] In a preferred embodiment, as shown in FIGS. 5, 7 and 8, the span module 12 further includes a plurality of in box connectors/receptacles or IBCs 60, configured to receive a twist lock 62, strategically positioned and spaced to facilitate connection and disconnection, to and from a chassis or flat bed of a truck, as shown in FIG. 10. In a preferred embodiment, once the span 12 is lowered to the chassis in FIG. 10, four twist locks 62 are rotated, for a secure lock and connection to the chassis. And conversely, when at a work site, the four twist locks can easily be rotated to disconnect the span 12 and chassis, for subsequent picking and placing.

[0035] Referring to FIG. 9, the tower module 30 provides a stable and secure vertical support and includes strategically positioned and spaced vertical, angled and horizontal supporting structure 64, 66 and 68 and further includes an upper portion 70 with an end 71, such as an “I” beam support structure with a plurality of apertures 72 and a lower portion 74.

[0036] In more detail, as shown in FIG. 10, the apertures 72 are spaced for receiving a bolt connector there through, to connect to one or more spans (FIGS. 9 and 10), for simple connection and secure support of a span 12, for expediting assembly, connection and disconnection to various components or modules, such as an adjacent span or platform. This structure is preferably on both sides of the tower 30 in FIG. 9.

[0037] The towers 30 shown in FIGS. 1 and 9, further include an upper portion 70 and a lower portion 74 with casters 76 and 78, respectively, to facilitate horizontal movement when on a side 77, for loading and unloading. In more detail, casters 76 and 78 are placed at the sides and bottom, help to facilitate telescopic insertion and removal from sides 22 and floor 16 of the tunnel 14, when stored in or removed from the span module 12, as shown in FIGS. 12-14.

[0038] In FIGS. 1, 2 and 9, the tower module 30 includes four legs 80 with an upper portion 82 and a lower portion 84. As shown in FIG. 19, the legs 80 include an outer tube 86 and an inner tube 90 connected to a flat foot 92. The outer tube 86 has a plurality of spaced outer apertures 94 (not shown) and likewise, an inner tube 90 has spaced apertures 96. Height adjusting bolts 98 allow telescopic height adjustable of the tower. A plurality of height adjusting bolts 98 can be utilized to connect the inner 90 and outer tubes 86, for “fine” height adjustment. Clamping structure 100 and clamping bolts 101, provide a secure connection with minimal undesirable vibration and lateral rocking of the legs.

[0039] As shown in FIG. 18, the feet 92 can be connected to extenders 102 with plates 103, for secure attachment and anchoring to the ground (when a spike or bolt is connected to the ground/asphalt or cement, respectively, through apertures 105, for example).

[0040] In FIG. 18, reinforcing extenders 102 preferably extend perpendicularly away from the span module 12 and legs 80, and are shown connected by bolts, to the feet 92. The legs 80 and extenders 102 generally form an “upside down T”,...
for enhanced horizontal stability and better gripping when appropriately attached to the ground surface.

[0041] It is desirable to have a smooth, steady and efficient flow of pedestrians in and out of a desired facility. Thus, in one embodiment, the tunnel 14 has handrails 104 on the sides 22 and a detachable handrail 104 securely connected to the floor 16, for pedestrian security and traffic control.

[0042] FIG. 3 shows a platform walkway 104 and a partial view of lower and upper stair weldments 106 and 108, along lines DD-DD in FIG. 2. The stair tower 30 includes a top 110 with two “T” beams 111 with apertures 112 for simple bolting and fastening to the lower stair weldment 106 and platform walkway 104, with several bolts on each side of the I beam 111. Each component has reinforced tubular interface structure 114 generally where different components meet. At an overhang region 120, an L shaped member 116 connects interfaces 114 of the upper stairwell 108 and platform 104, with a series of bolts and apertures. A guide plate 118 is included, to assist with alignment and assembly of walkway 104 and the L member 116 of weldment 108.

[0043] Preferably, the L member is permanently affixed to the interface 114 of weldment 116, for reliable structural integrity. This structure assists with placement, structural integrity, alignment and guidance at the overhang 120. Likewise, at the left side of FIG. 3, preferably the plate 118 and interface or tube 114 are also welded or otherwise permanently connected.

[0044] FIG. 4 shows a partial view of an upper platform walkway 104 between the upper stair weldment 108 and span 122, along lines EE-EE in FIG. 2, which can generally be considered a mirror image of the lower platform walkway 104 in FIG. 3. In FIG. 4, on the left side, the interfaces 114 have horizontal apertures for receiving and fastening the platform 104 and stair weldment 108 with bolts 124. The square tubing provided by interface 114 is permanently affixed to the stairs 108. Guide plate 118 provides a ledge and structural assistance, in alignment during assembly.

[0045] On the right side of FIG. 4, a plate 126 is shown with a sufficient width as to rest on top 110 on one side and connected to interface 114 on the other, and has apertures for receiving bolts 128 from above, to connect to top 110. When assembled, this structure simplifies placement, alignment and connecting of the span 122 with the tower 30. On the right, the members 36 and 40 of span 12 are not required to be attached to the walkway 104 in FIG. 4.

[0046] FIG. 5 shows a connection region along lines S-S in FIG. 1, where two adjacent spans 30 connect and interface, from a position below looking up. It includes the guide plate 44 with holes 46 for bolts, and the strategic placement of the IBCs 60 on proximal side 25. IBCs are also placed at substantially similar positions on the distal side 27 (in FIG. 2). In more detail, the IBCs 60 provide for simplified connection and disconnection to a chassis, flat bed truck and the like, for simplified loading and unloading.

[0047] Referring to FIG. 6, a partial connection region along lines R-R in FIG. 1, is shown connecting two adjacent spans 12, from above. As detailed previously, the upper connector 26, of the proximal side 25 of the long span 12, is shown with a female portion including two outwardly extending members 36 (or ear lugs), each having a hole 38, being connected with a distal side 27 of an adjacent span 12 having a male portion with an outwardly extending member 130, with a hole 132. The male and female portions are substantially complementarily configured for simple connection and alignment (of a male and female portions), to facilitate connection (and disconnection) of adjacent spans 12 by insertion of pin 58.

[0048] This structure defines a universal connection structure. In the embodiment shown in FIG. 5, the span 12 on the right has two male members 130 connected to a substantially complementarily configured female member defined by members 36 at the floor 16, and conversely at the top 18 (only partially show however), the opposite is the case. For example, the span 12 at the right includes two female portions defined by members 36 on the top 18 on sides 22, for receiving two complementarily configured male members 130. Thus, in one embodiment, the span 12 on the right in FIG. 5, has two male members 130 at or near the floor 16 and two female members (defined by members 36) at the top, and the span 12 on the left has the opposite (complementarily configured connection structure). This design provides an enhanced connection means for alignment, assembly and disassembly, while also having the structural integrity required for such an important application.

[0049] As should be understood by those skilled in the art, these universal connectors (connection structure) can, for example, be reversed (two males on top and two females on the bottom, two females on the top and two males on the bottom) or alternated (one male member on one side and a female on the other on the bottom and the same or different on the top), and can include various dimensional and structural changes, rearrangements and modifications, while remaining within the spirit and scope of this invention.

[0050] A force traversing plate 44, as previously discussed, is also shown. FIGS. 7 and 8 provide further views of this structure, and have been discussed previously.

[0051] FIG. 9 shows a partial view of the center tower supporting a connection region where two adjacent spans meet. The upper portion 70 of the tower 30 supports one of the spans 12 at two places, at proximal side 25 and reinforced region 134, for improved stability, assembly and guidance and structural integrity.

[0052] FIG. 10 shows the top 110 of center tower 30 supporting a proximal side 25 of a span 12, along lines U-U in FIG. 1. They are connected with bolts through apertures 112.

[0053] Referring to FIGS. 12, 13 and 14, a loaded fifty three foot flat bed trailer 201 with various components, is shown. It includes four stair leg brackets 202, sixteen weldments 203, four ground plates 204, sixteen weldment mounting legs 205, four weldment feet 206, eight handrails 207, four weldment rails 208, eight stair handrails 209, fifty two foot span 210, two support towers 211 and two stair towers 212.

[0054] Referring to FIG. 15, another loaded fifty three foot flat bed trailer 301 is shown. It includes eight quick pins 302, washers 303, thirty four filler plates 304, four weldment mounting legs 305, eight cotter pins 306, center tower 307, twenty platforms 308 and three eighteen foot spans 309.

[0055] Referring to FIGS. 16 and 17, another loaded fifty three foot flat bed trailer 401 is shown. It includes ten lower stair weldments 402 and ten upper stair weldments 403.

[0056] FIG. 18 shows a preferred placement of the end tower 30 with pockets 34, for receiving forks of a forklift and extenders 102, as detailed above. As should be understood by those skilled in the art, the middle tower can include all of this structure as well, and the towers can include various dimensional changes, rearrangements and modifications, while remaining within the spirit and scope of this invention.
FIG. 20 shows three stair configurations, including a straight egress, a modified ninety degree egress and a straight ninety degree egress. They can be modified to fit the available space.

It should be noted, that elevators or lifting means can be utilized to transport handicapped, such as people in wheel chairs and the like, to the tunnel. It should also be noted, that in certain applications, ramps can be utilized instead of stairs, for transporting handicapped, driving golf cars through the tunnel and the like.

FIG. 21 is an elevated plan view of a Modular Pedestrian Bridge, without a center tower, in one embodiment.

FIG. 22 is flow diagram of a Modular Pedestrian Bridge System 500. In its simplest form, the system 500 includes: providing 510 a span module having a tunnel sufficient to allow pedestrians to travel through the tunnel, the tunnel being defined by a floor and a top, defining a height, sides defining a width and upper and lower connectors, a tower module, stair assembly and the tunnel of the span module having sufficient dimensions to allow the tower module to be telescopically fit into the tunnel; transporting 520 the span module, tower module and stair assembly to a job site; and assembling 530 the span module, the tower module and the stair assembly, to form a bridge.

The providing step 510 further includes providing at least one of: (i) the span module and tower module with pockets adapted to be received by a fork of a fork lift; (ii) the lower connector includes an outwardly extending member having a hole and the upper connector includes two outwardly extending members having a hole; and (iii) the upper connector includes an outwardly extending member having a hole and the lower connector includes two outwardly extending members having a hole.

The system can further include the step of connecting the span module and a chassis or flat bed truck with a twist lock. This feature is adapted to facilitate connection and disconnection.

The system can further include the step of providing the tower module with casters, adapted to facilitate horizontal movement when on a side, for facilitating insertion and removal from the tunnel.

The system can further include at least one of the steps of: adjusting a height of the tower module telescopically, as necessary; and providing outwardly projecting extenders at a lower portion of the tower module, for anchoring and stability.

In a preferred embodiment, the assembling step 530 includes at least one of the steps of: unlocking twist locks connecting at least one span to a chassis or flat bed truck; unloading components in the tunnel of the at least one span; aligning and interconnected at least one span end to end with a second span, to form an integrated and unitary span module of a desired length; surveying the job site to determine if the tower height is within a certain threshold, and if not, adjusting the height; attaching lateral supports to a bottom portion of the tower; anchoring the tower to the ground; placing and positioning the towers at appropriate locations; picking, placing, aligning and connecting the at least one span with the towers; connecting stairs to the tower; connecting handrails and a canopy to a platform of the tower; and forming an integrated bridge structure. These features enhanced structural reliability and stability and simplicity in assembly.

EXAMPLE ONE

Detailed below is an example of the general process flow of a customer ordering a modular pedestrian bridge, for purchase or lease, for example.

1. A customer contacts a bridge supplier with its general requirements. The customer may require a temporary modular bridge for a specific event, or perhaps a permanent structure. Typically, the customer will provide the approximate dimensions needed for the desired bridge, such as length, approximate tower height, terrain, available space for stair layout and available foot print.

2. The supplier pre-assembles and pre-packs the spans as necessary, preliminarily designs and pre-packs the necessary components on and in the flat bed chassis, as shown in FIGS. 12-14, 15 and 16-17, as well as pre-plans the assembly necessary at the work site. Advantageously, it is more efficient to pre-plan and pre-assembly components, at the suppliers facilities, where the personnel and expertise are resident, prior to going in the field for assembly.

For example, in one application, a one hundred six foot span was required. Thus, a first truck, such as the one in FIGS. 12-14 was loaded, a second truck with three 18 foot spans were pre-assembled, connected and loaded, as in FIG. 15 and a third truck was loaded, as in FIGS. 16 and 17. Each truck included various components as well.

3. Advantageously, the spans were equipped with IBCs. Twist locks, as shown in FIG. 11, were used to lock the chassis or flat bed truck with the spans in FIGS. 12-14 and 15.

4. The loaded trucks were driven to the work site. Advantageously, no special freight permits were required, because the loads (width, height and lengths) were within normal freight specifications.

5. At the work site, the twist locks were unlocked, in order to lift and remove the spans from the chassis, as illustrated in FIG. 11.

6. The components in the spans were unloaded and the components were laid out in an organized way, for easy access, prior to lifting the span(s). However, it is possible to unload the spans with the components therein.

7. The spans were lifted off the truck, placed on the ground in general alignment and interconnected to the desired length. In this example, the three spans in FIG. 15 and one in FIG. 12 were connected to make the span 106 feet long, as shown in FIG. 1. Thus, once the spans are connected at the corners, with members 36 and 40, and with the plates 44, they provide a reliable, integrated, assembled length and unitary bridge structure, which is fairly light weight for a bridge with such specifications.

8. Prior to placement of the towers, a confirmatory survey and site inspection is completed, to confirm if the rough tower height estimates, provided by the customer, were correct. If they are correct, the towers are ready to be picked by an overhead crane or fork lift and placed. This is referred to as “course”, height estimate. The height can be “finely” adjusted, by telescopically raising or lowering the legs, as in FIG. 19. The lower portions of the legs have inner and outer tubes adapted just for such a fine adjustment, using bolts and a series of spaced holes.

Lateral extenders 102 and plates 103 are used under each of the legs, and provide enhanced lateral support and a stable ground connection, when appropriately anchored. There are holes 105 in the plates 103 for attaching the plate, firmly to the ground, by use of bolts, spikes and the like. For example, some surfaces can sink or are otherwise unstable,
such as dirt, gravel and asphalt. Thus, the ground plate 103 provides a stable and reliable ground anchor or connection. 9. The towers are placed and positioned at the appropriate locations. They can be carried by a crane or fork lifted, as appropriate.
10. The towers and platforms are connected. Typically, this involves lifting the spans and placing, maneuvering and aligning them with the towers, which have been correctly positioned, set and located. This is not a trivial task, considering unpredictable weather conditions, such as wind, rain and snow, rough terrain and the like, are possible. Since the spans have been securely connected as a single integrated structure, only one lift or pick and place should be required. In this example, the 106 foot span was picked up and placed on the side and middle platforms in FIG. 1. The guide plates and related span and tower structure, contribute to helping guide, align and attach the span, tower and platforms. Several bolts were used to fasten these components. The modularity, easy access at connection points and interfaces, and simple connections (requiring conventional hand tools), simplify assembly and disassembly.
11. The stairs are aligned and connected to the appropriate hardware and structure. The tunnel structure and canopy is connected to the platforms. The canopy is a chain link fence surrounding the top and sides of the platform, like the canopy of the spans, and the handrails are connected to the platform and stairs.

[0069] As should be understood by those skilled in the art, there are numerous embodiments of the invention have been shown and described, it should be understood that various modifications and substitutions, as well as rearrangements and combinations of the preceding embodiments, can be made by those skilled in the art without departing from the spirit and scope on the instant invention.

What is claimed is:
1. A Modular Pedestrian Bridge, comprising:
   a span module having a tunnel sufficient to allow pedestrians to travel through the tunnel, the tunnel being defined by a floor and a top, defining a height, sides defining a width and upper and lower connectors, a tower module, stair assembly, the tunnel of the span module having sufficient dimensions to allow the tower module to be telescopically fit into the tunnel.
2. The Modular Pedestrian Bridge of claim 1, wherein the floor of the span module has pockets strategically positioned and spaced to be received by a fork of a fork lift.
3. The Modular Pedestrian Bridge of claim 1, wherein the lower connector includes a male outwardly extending member having a hole and the upper connector includes a substantially complementarily configured female member having a hole.
4. The Modular Pedestrian Bridge of claim 4, wherein the upper connector includes a male outwardly extending member having a hole and the lower connector includes a substantially complementarily configured female member having a hole.
5. The Modular Pedestrian Bridge of claim 1, wherein the lower connector includes an outwardly extending member having a hole and the upper connector includes two outwardly extending members have a hole, the upper and lower connectors being complementarily configured to be connectable with and at least partially be received in each other.
6. The Modular Pedestrian Bridge of claim 1, wherein the span module includes strategically positioned and spaced vertical, angled and horizontal supporting structure and the top has a plurality of loops with holes configured to facilitate lifting.
7. The Modular Pedestrian Bridge of claim 1, wherein the span module includes a plurality of in box connectors configured to receive a twist lock, strategically positioned and spaced to facilitate connection and disconnection to and from a mobile vehicle with in box connectors similarly spaced.
8. The Modular Pedestrian Bridge of claim 1, wherein the tower module provides vertical support and includes strategically positioned and spaced vertical, angled and horizontal supporting structure and further includes an upper portion for supporting the span.
9. The Modular Pedestrian Bridge of claim 1, wherein the tower module includes at least one of: an upper portion and a lower portion with casters, adapted to facilitate horizontal movement when on a side; four legs with an upper portion and a lower portion, the legs include an outer tube and have an adjustable foot including an inner tube and flat foot; four legs with an upper portion and a lower portion, the lower portion including outwardly projecting extenders, adapted to provide stability; and plurality of towers.
10. The Modular Pedestrian Bridge of claim 1, wherein stairs include at least one of a ramp and elevator.
11. A Modular Pedestrian Bridge System, comprising:
   providing a span module having a tunnel sufficient to allow pedestrians to travel through the tunnel, the tunnel being defined by a floor and a top, defining a height, sides defining a width and upper and lower connectors, a tower module, stair assembly, and the tunnel of the span module having sufficient dimensions to allow the tower module to be telescopically fit into the tunnel;
   transporting the span module, tower module and stair assembly to a job site; and
   assembling the span module, the tower module and the stair assembly to form a bridge.
12. The Modular Pedestrian Bridge System of claim 11, wherein the providing step further includes providing at least one of the span module and tower module with pockets adapted to be received by a fork of a fork lift.
13. The Modular Pedestrian Bridge System of claim 11, wherein the providing step includes providing at least one of: (i) the lower connector includes a male substantially outwardly extending member having a hole and the upper connector includes a female member complementarily configured to receive the male member, having a hole; and (ii) the upper connector includes a male substantially outwardly extending member having a hole and the lower connector includes a female member with a hole.
14. The Modular Pedestrian Bridge System of claim 11, further comprising the step of connecting the span module and a chassis with a twist lock, adapted to facilitate connection and disconnection.
15. The Modular Pedestrian Bridge System of claim 11, further comprising the step of providing the tower module with casters, adapted to facilitate horizontal movement when on a side.
16. The Modular Pedestrian Bridge System of claim 1, further comprising at least one of the steps of: adjusting a height of the tower module telescopically; and providing outwardly projecting extenders at a lower portion, adapted to provide stability.
17. The Modular Pedestrian Bridge System of claim 11, wherein the assembling step includes at least one of the steps of:

- unlocking twist locks connecting at least one span to a chassis or flat bed truck;
- unloading components in the tunnel of the at least one span; aligning and interconnected at least one span end to end with a second span, to form an integrated and unitary span module of a desired length;
- surveying the job site to determine if the tower height is within a certain threshold, and if not, adjusting the height;
- placing lateral supports to a bottom portion of the tower; anchoring the tower to the ground;
- picking, placing, aligning and connecting the at least one span with the towers; connecting stairs to the tower; connecting handrails and a canopy to a platform of the tower; and
- forming an integrated bridge structure.

18. A Modular Pedestrian Bridge System, comprising:

- providing a span module having a tunnel sufficient to allow pedestrians to travel through the tunnel, the tunnel being defined by a floor and a top, defining a height, sides defining a width and upper and lower connectors, a tower module, stair assembly, and the tunnel of the span module having sufficient dimensions to allow the tower module to be telescopically fit into the tunnel;
- transporting the span module, tower module and stair assembly to a job site; and
- assembling the span module, the tower module and the stair assembly to form a bridge, wherein the assembling step includes:
  - surveying the job site to determine if a height of the tower module is within a certain threshold, and if not, adjusting the height;
  - placing and positioning the tower modules at appropriate locations; anchoring the tower module to the ground;
  - picking, placing, aligning and connecting the at least one span module with the tower module; and
  - connecting stairs or ramps to the tower module.

19. The Modular Pedestrian Bridge System of claim 18, wherein the providing step includes providing at least one of:

- (i) a lower connector including a male member having a hole and an upper connector including a female member complementarily configured to receive the male member, having a hole; and
- (ii) an upper connector including a male and a lower connector including a female member.

20. The Modular Pedestrian Bridge System of claim 18, further comprising the step of providing the tower module with casters.

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