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Putnam et al.(10) **Pub. No.: US 2021/0002892 A1**(43) **Pub. Date: Jan. 7, 2021**(54) **PARAPET CLAMP DEVICE**(52) **U.S. Cl.**(71) Applicant: **Boston Barricade Company Inc.**, Vero
Beach, FL (US)CPC **E04B 2/721** (2013.01); **E04G 21/32**
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(57)

ABSTRACT(21) Appl. No.: **16/458,769**(22) Filed: **Jul. 1, 2019****Publication Classification**(51) **Int. Cl.****E04B 2/72** (2006.01)**E04G 21/32** (2006.01)

Embodiments of a parapet clamp device employ struts, a strut clamp, an L-connector and a clamp arm assembly. The device can securely nest a strut within the strut clamp and the strut clamp within the clamp arm assembly so as to promote sliding engagement to a desired location where the device components can be fixedly secured. The device can be embodied as a series of parapet clamp devices with each uniquely adaptable to the environment in which it is deployed.

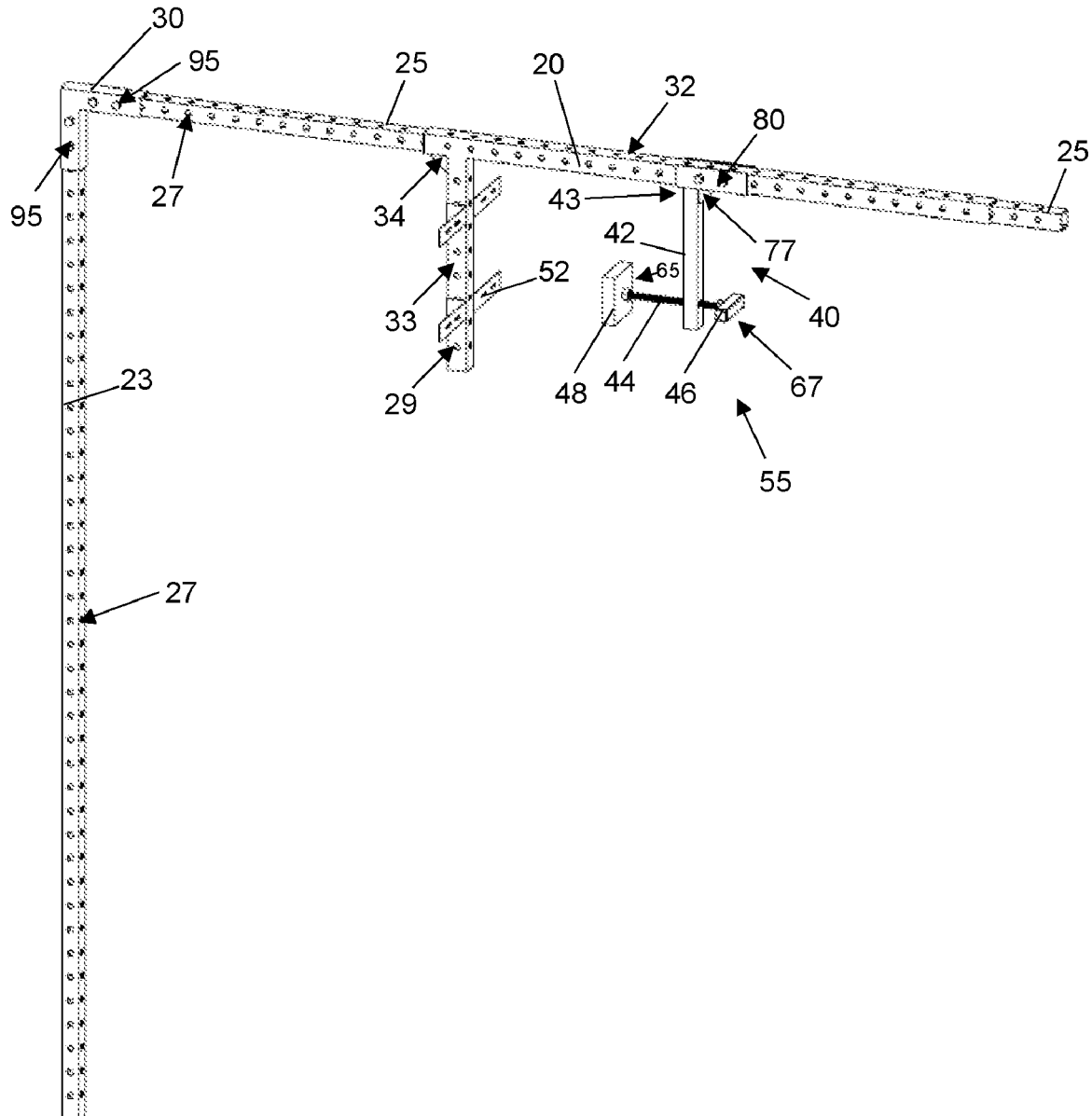


Fig. 1

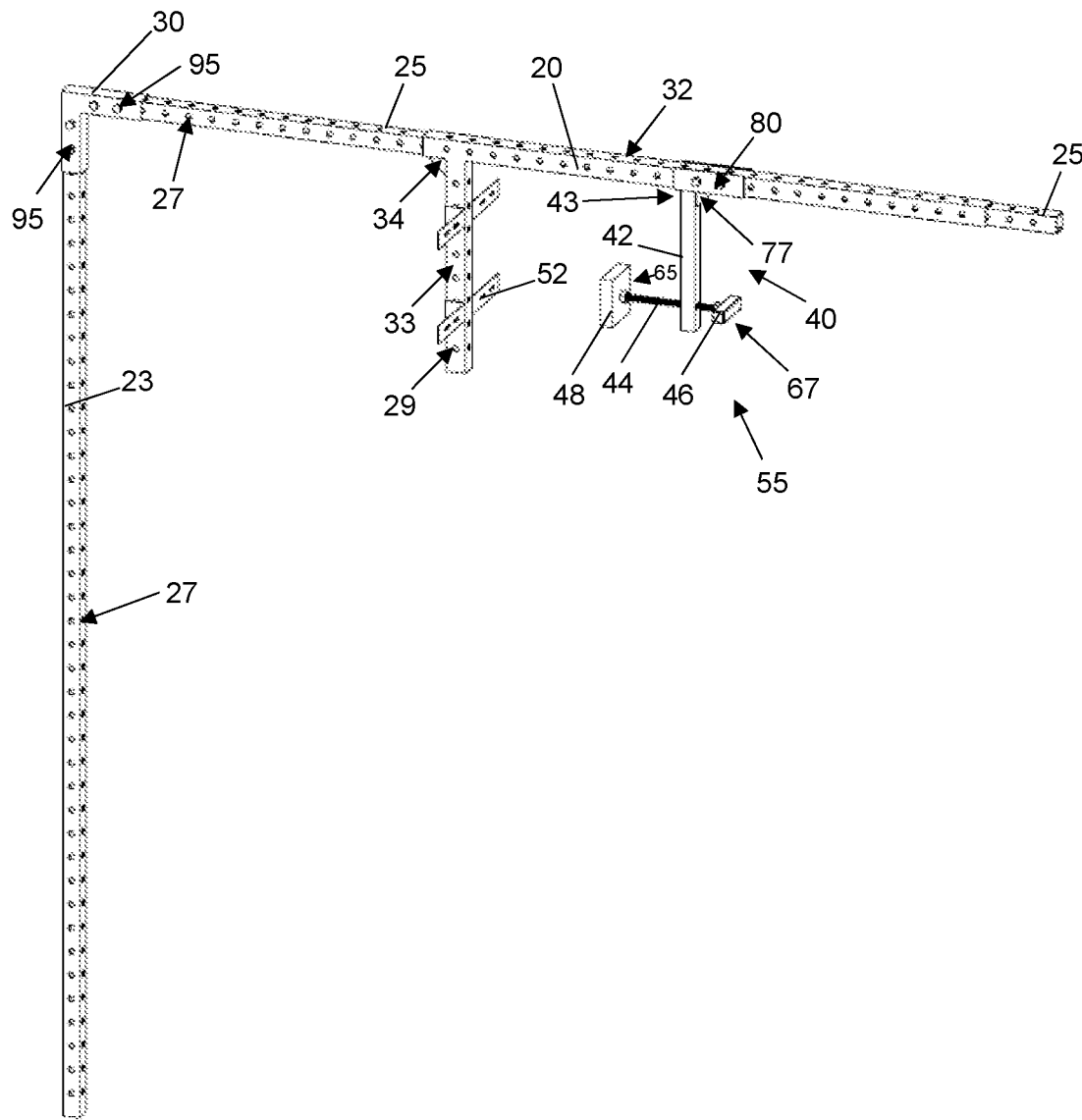
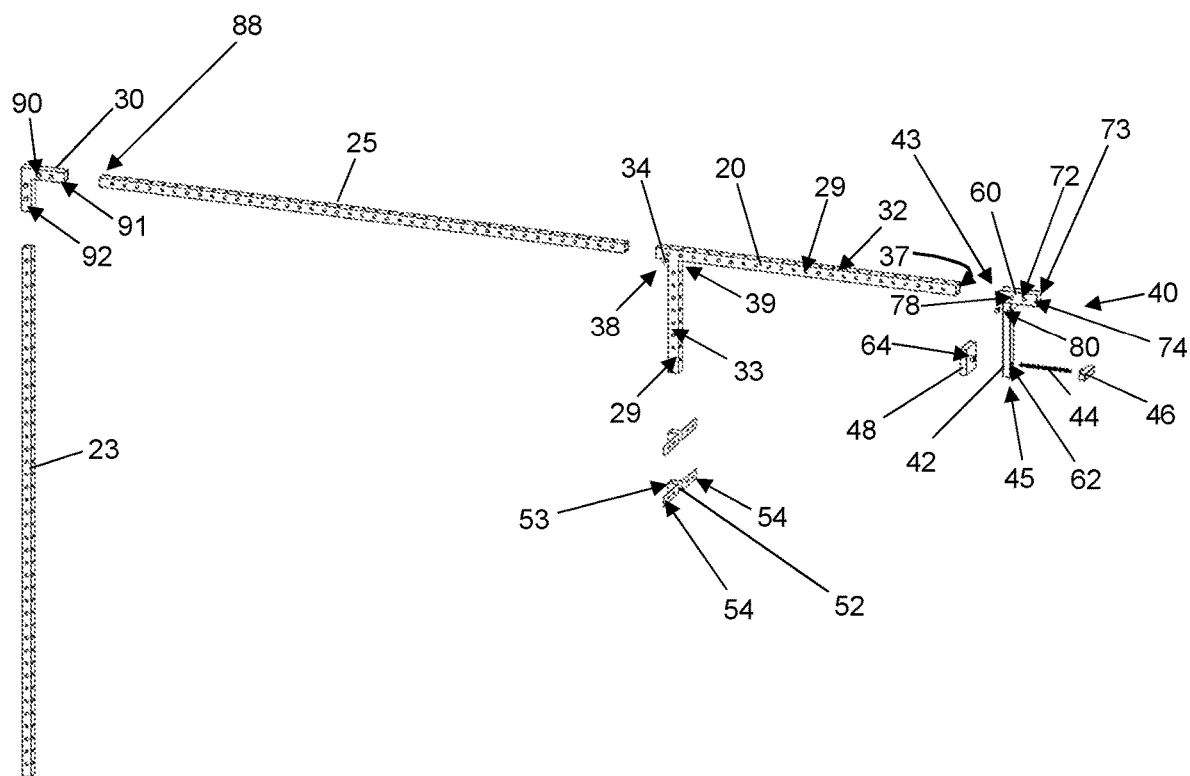
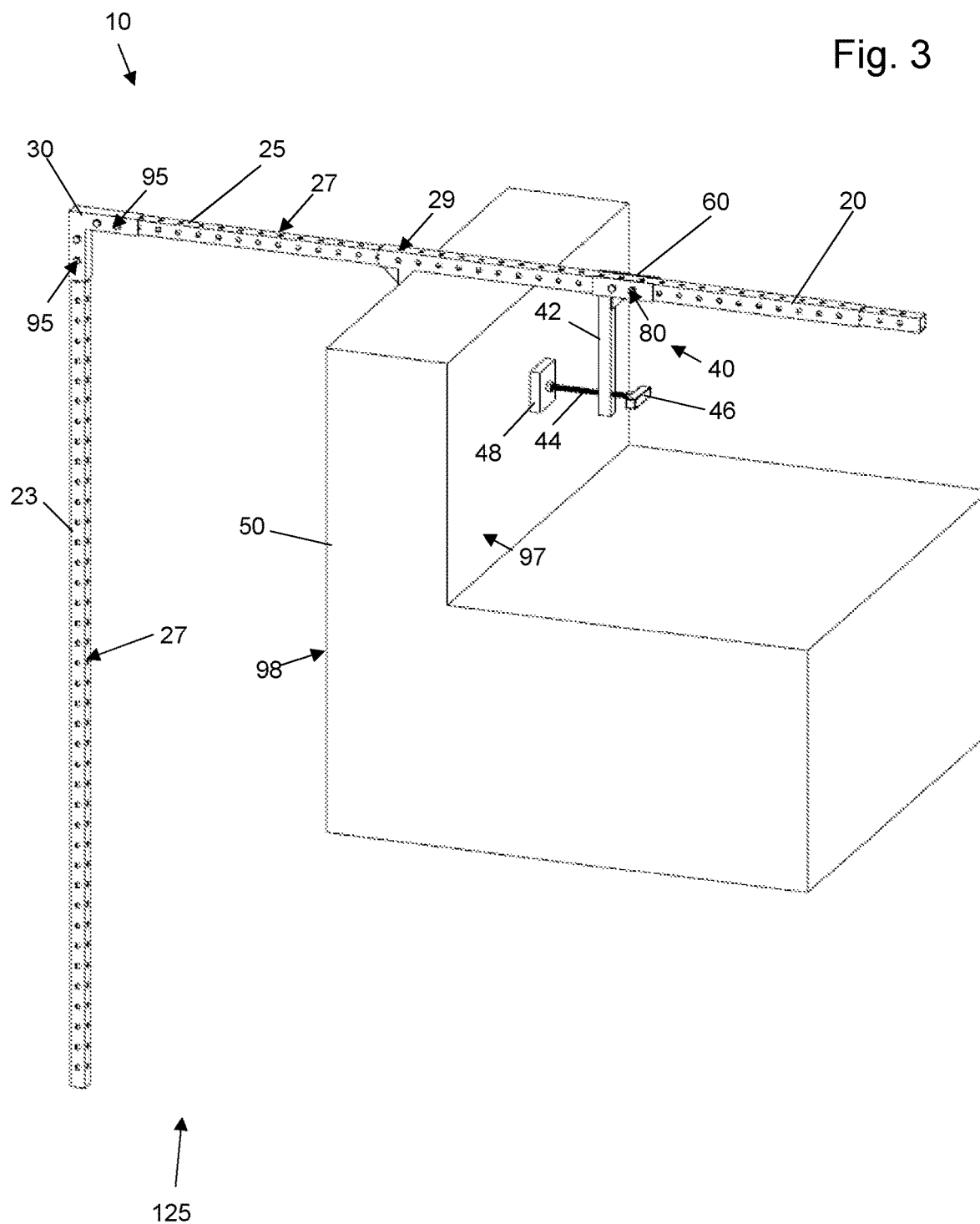


Fig. 2





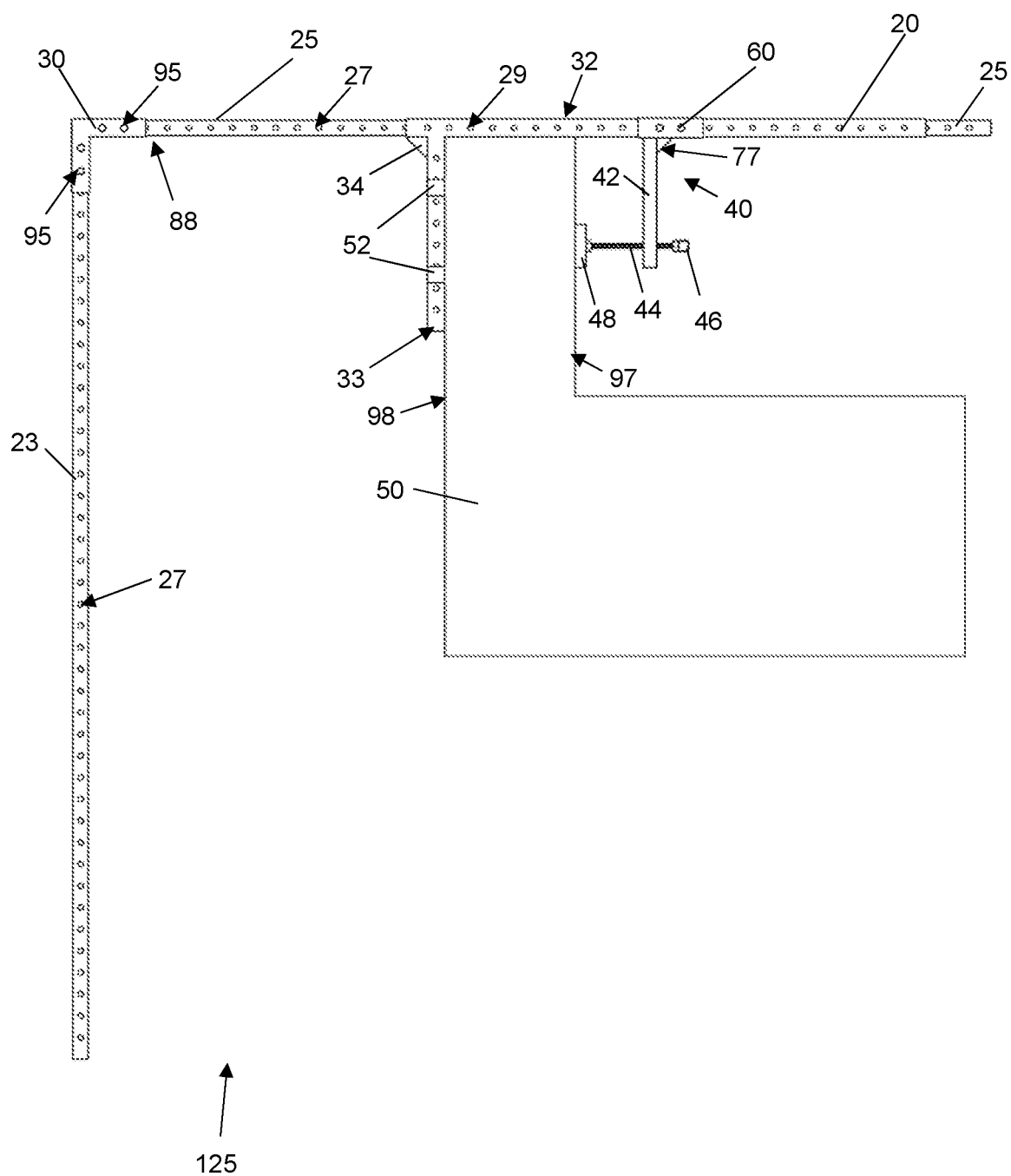
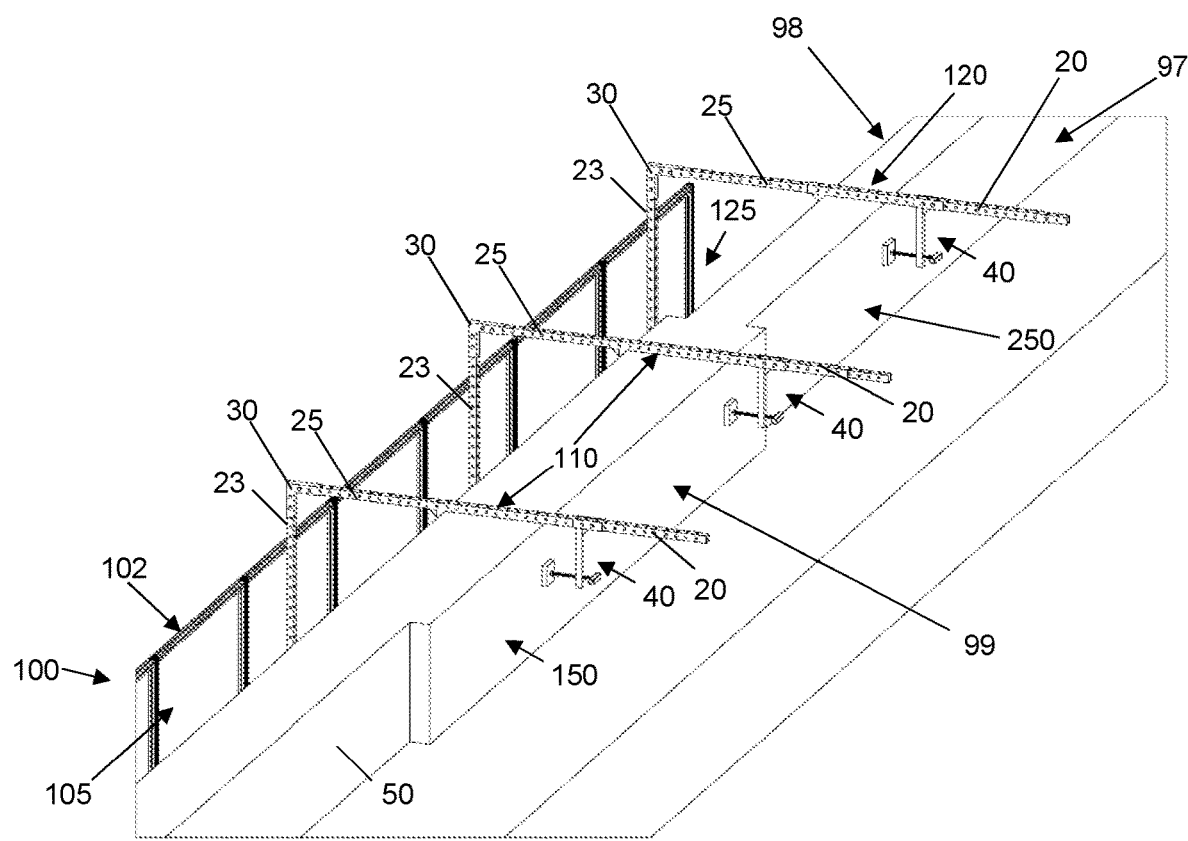


Fig. 5



PARAPET CLAMP DEVICE

TECHNICAL FIELD

[0001] The present disclosure relates to buildings, and more particularly to a parapet clamp for supporting temporary barricades.

BACKGROUND AND SUMMARY

[0002] Barricades, such as temporary construction barricades, can assist in protecting people and property from harm. Typical construction barricades are stationary and supported directly from the ground. Some construction barricades are placed adjacent the façade of a building but are bulky, cumbersome and may not permit access to the full façade of the building.

[0003] The present disclosure provides, in part, a parapet clamp device that can attach to the highest point of a building façade without penetration to any part of the building. Embodiments of the device can incorporate struts, a strut clamp, an L-connector and a clamp arm assembly. The device can be embodied as a series of devices with each uniquely adaptable to the environment in which it is deployed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 is a front perspective view of one embodiment of a parapet clamp device in accordance with the present disclosure.

[0005] FIG. 2 is an exploded front perspective view of the device of FIG. 1.

[0006] FIG. 3 is a front perspective view of the device in FIG. 1 as installed on an exemplary structure.

[0007] FIG. 4 is a front view of the parapet clamp device of FIG. 1 as installed on an exemplary structure.

[0008] FIG. 5 is a perspective view of a series of parapet clamp devices in accordance with the present disclosure as installed on an exemplary structure.

DETAILED DESCRIPTION OF EMBODIMENTS

[0009] The presently disclosed subject matter now will be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all embodiments of the presently disclosed subject matter are shown. Like numbers refer to like elements throughout. The presently disclosed subject matter may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Indeed, many modifications and other embodiments of the presently disclosed subject matter set forth herein will come to mind to one skilled in the art to which the presently disclosed subject matter pertains having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the presently disclosed subject matter is not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims.

[0010] It will be appreciated that reference to “a”, “an” or other indefinite article in the present disclosure encompasses one or more than one of the described element. Thus, for example, reference to a strut may encompass one or more struts, and so forth.

[0011] In the parapet clamp device 10 according to embodiments of the present disclosure as shown in FIGS. 1 through 5, elements as shown include: an L-shaped strut clamp 20, vertical 23 and horizontal 25 struts, an L-connector 30 and a clamp arm assembly 40. In various embodiments, a strut base plate (not shown) can be attached to the lower end of the vertical strut 23 to engage a ground surface for additional support. Each strut 23, 25 can each be formed as an extruded substantially hollow rectangular prism with a series of openings 27 on the side faces thereof. The series of openings 27 can be aligned, at least as to opposing faces, so as to permit connection to external components through bolts or other devices that may be inserted through the openings 27. The strut clamp 20 can similarly be formed as an extruded substantially rectangular prism with a series of openings 29 on the side faces thereof. The series of openings 29 can also be aligned, at least as to opposing faces, so as to permit connection to external components through bolts or other devices that may be inserted through the openings 29. The L-connector 30 can be formed as adjoined hollow rectangular prisms with a first leg 91 extending at a right angle to a second leg 92, and with openings 90 formed in each of the legs. The openings 90 can be aligned, at least as to opposing faces, so as to permit connection to external components through bolts or other devices that may be inserted through the openings 90. The L-connector 30 can be formed such that the height and width of the legs 91, 92 are slightly longer than the height and width of the struts 23, 25, such that strut 23 can slidably engage the interior of leg 91 and strut 25 can slidably engage the interior of leg 92. The strut 23 can be held in position within leg 91 and strut 25 can be held in position within leg 92 through the use of bolts 95, for example, extending through aligned openings 90 and openings 27. The bolts 95 may be secured in place using nuts (not shown) on the back side of the legs 91, 92, as will be understood.

[0012] The strut clamp 20 can be formed as a main body 32 and an arm 33 extending perpendicularly from the main body 32. The body 32 and arm 33 can be formed as substantially hollow rectangular prisms or tubes, each with a series of openings 29 on at least two sides, and in various embodiments, on all four sides. The hollow body 32 has a chamber 37 in which to receive a horizontal strut 25, for example. In various embodiments, the arm 33 can be welded to the body 32, and a supporting gusset 34 can be welded at the exterior corner 38 of the joint connecting the body 32 and arm 33. No gusset is provided on the interior corner area 39 of the joint connecting the body 32 and arm 33, as such a gusset would interfere with the flush mating between the body 32, arm 33 and building parapet 50 during operation. The body 32 of the strut clamp 20 has a slightly larger width and height than the width and height of the horizontal strut 25, such that the body 32 can receive the horizontal strut 25 in sliding engagement. During operation as described elsewhere herein, the horizontal strut 25 can be secured in place at a desired depth within the body 32 of the strut clamp 20 based upon details of specific implementations. One or more front pad members 52 can be secured around or to the strut clamp arm 33 in order to provide an extended surface for mating with the building parapet 50 or other element to which the present device is to be secured. As shown in FIG. 2, for example, the front pad members 52 can include leg segments 54 extending from a generally U-shaped body 53. The U-shaped body segment 53 can be placed around and/or

secured to the strut clamp arm 33 during operation, wherein securing can be accomplished through one or more bolts extending through an opening in the body 53 and in the strut clamp arm 33.

[0013] As shown in FIGS. 1 through 4, the clamp arm assembly 40 can include a down tube 42, a threaded rod 44, a knob 46 and a clamping pad 48. The down tube 42 can be secured at a first end 43 to the strut clamp 20, such as by bolts and locking fasteners, for example. The down tube 42 can also retain, at or near a second end 45, the threaded rod 44. In various embodiments, the rod 44 is retained by inserting the rod 44 through side openings 62 in the down tube 42 such that the threaded rod 44 can move through the down tube 42 at different depths depending upon implementation. The threaded rod 44 can be secured at a first end 65 to the clamping pad 48 by a thread receiving swivel nut 64 secured to the clamping pad 48. The knob 46 can be secured to a second end 67 of the threaded rod 44, where the second end 67 is located away from the building parapet wall 50 or other object to be clamped. The clamping pad 48 abuts the building parapet wall 50 or other object during operation, as described more completely hereafter. In various embodiments, the rod 44, knob 46 and/or clamping pad 48 combine to form a clamp assembly 55 movably secured to the down tube 42. The clamp assembly 55 is operable to move the clamping pad 48 toward and away from the strut clamp arm 33 during operation.

[0014] In various embodiments, the down tube 42 is formed with and/or secured to a substantially U-shaped saddle member 60 having parallel sides 72, 73 and a base 74 formed with the bottom edges 75, 76 of the sides 72, 73. The sides 72, 73 extend perpendicularly from the base 74, which permits the saddle member 60 to receive the strut clamp 20 in secure fashion. The base 74 of the saddle member 60 is secured atop the down tube 42, such as by welding, for example. The down tube 42 can be provided as a substantially rectangular tube or prism with aligned openings 62 in two or more sides to receive the rod 44 as described elsewhere herein. A support gusset 77 can also be welded to the base 74 and the down tube 42 for support. The sides 72, 73 can be formed with aligning openings 78 to permit alignment with the openings 29 in the strut clamp body 32 during operation and openings 27 in the horizontal strut 25. In various embodiments, the width of the base 74 is slightly wider than the width of the strut clamp body 32 such that the strut clamp body 32 can slidably engage the saddle member 60. During operation as described elsewhere herein, the saddle member 60 can be secured in place at a desired place along the strut clamp body 32 based upon details of specific implementations. In various embodiments, the saddle member 60 is secured in place using bolts 80 extending through openings 78 of the saddle member 60 and corresponding openings 29 in the strut clamp body 32 and openings 27 in the horizontal strut 25. In this way, the saddle member 60, strut clamp body 32 and horizontal strut 25 are secured together in nested fashion, thereby providing a strong connection from which an object such as a building parapet 50 can be clamped.

[0015] In various embodiments such as shown in FIG. 5, the wall 100 is provided as a wallboard 105 with a frame-type support 102, and the frame support 102 is secured to the vertical strut(s) 23 by one or more brackets (not shown). The

wallboard 100 may be provided as a single large sheet or as modular segments that are secured to and/or held by the frame support 102.

[0016] In assembly and operation, a horizontal strut 25 can be positioned within the chamber 37 of the strut clamp main body 32, and the base 74 of the saddle member 60 of the clamp arm assembly 40 can be positioned under the strut clamp main body 32. The arm 33 of the strut clamp 30 and the down tube 42 of the clamp arm assembly 40 can then be positioned on different sides of a building parapet 50 or other element to which the device is to be secured. The saddle member 60 of the clamp arm assembly 40 can then be slid towards or away from the arm 33 of the strut clamp 30 so as to provide an appropriate distance for clamping pressure to be applied. Once the appropriate distance is found, the openings 78, 29 and 27 in the saddle member 60, strut clamp body 32 and horizontal strut 25, respectively, are aligned and fastened in place using bolts 80 and corresponding nuts (not shown). The knob 46 of the clamp arm assembly 40 can then be rotated so as to turn the rod 44 and move the clamping pad 48 towards a first side 97 of the building parapet 50 or other element to be clamped. As the knob is turned, the clamping pad 48 will eventually contact the parapet 50 on the first side 97, while the strut clamp arm 33 contacts the parapet 50 on the second side 98. As described elsewhere herein, front pad member(s) 52 can be secured to the strut clamp arm 33 to provide additional contact surface and compression to the second side 98 of the parapet 50.

[0017] The leg 91 of the L-connector 30 is secured to the wall support end 88 of the horizontal strut 25 as described above, and the leg 92 of the L-connector 30 is secured to the vertical strut 23 as described above. The vertical strut 23 provides support for the wall 100. The present device can be employed such that the wall 100 is first secured to one or more vertical struts 23 and then the struts 23 are secured to the L-connector 30, or such that the one or more struts 23 are first secured to the L-connector 30, and then the wall 100 is secured to the strut(s) 23. Similarly, the present device can be employed such that the building parapet 50 or other element is first clamped between the clamp arm assembly 40 and the strut clamp arm 33 and then the wall 100 and/or vertical strut(s) 23 are secured to the L-connector 30, or in a different order of attachment. The vertical struts 23 form a secure sub-structure and can be secured to the wall 100 and maintain the wall 100 in substantially fixed position when the clamp assembly 55 and strut clamp arm 33 are securely clamped to a building parapet 50.

[0018] It will be appreciated that the present device can facilitate connection to parapets having different widths. For example, as shown in FIG. 5, clamps 110 are secured to the parapet 50 at a location 150 and clamp 120 is secured to the parapet 50 at a location 250, where the width of the parapet 50 at location 150 is larger than the width of the parapet 50 at location 250. In this way, a series of parapet clamp devices 110, 120 can be employed with each device uniquely adaptable to the environment in which it is deployed.

[0019] Once installed, the device creates an opening 125 between the barricade wall 100 and the building such that construction, maintenance and other building activities can take place while the public is protected from such activities by the barricade wall 100.

1. A parapet clamp device, comprising:

a strut clamp comprising a body and an arm extending perpendicularly from the body, wherein the body is

- hollow and has an internal chamber, and further wherein the body is formed with a series of strut clamp body openings therein;
- a horizontal strut comprising a wall support end and a series of horizontal strut openings, wherein the horizontal strut is slidable through the internal chamber of the strut clamp body;
 - a clamp arm assembly securable to the body of the strut clamp, wherein the clamp arm assembly comprises a down tube and a clamp assembly movably secured to the down tube; and
 - an L-connector comprising a first leg and a second leg extending substantially perpendicularly to the first leg, wherein the first leg is securable to the wall support end of the horizontal strut, and wherein the second leg is securable to a vertical strut, such that the vertical strut provides a secure sub-structure.
2. The parapet clamp device of claim 1, wherein the down tube of the clamp arm assembly comprises a first end and a second end, wherein the first end of the down tube is securable to the body of the strut clamp, wherein the clamp assembly comprises a threaded rod, a knob and a clamping pad, wherein the threaded rod is movably maintained within the down tube at the second end of the down tube.
 3. The parapet clamp device of claim 2, wherein the threaded rod comprises a first threaded rod end and a second threaded rod end, wherein the knob is secured to the first threaded rod end.
 4. The parapet clamp device of claim 3, wherein the clamping pad is secured to the second threaded rod end.
 5. The parapet clamp device of claim 2, wherein the clamp arm assembly further comprises a substantially U-shaped saddle member secured to the down tube, wherein the saddle member comprises a pair of parallel sides and a base formed with and extending perpendicularly to the parallel sides.
 6. The parapet clamp device of claim 5, wherein the body of the strut clamp is slidably maintained within the saddle member.
 7. The parapet clamp device of claim 5, wherein the body of the strut clamp is fixedly maintained within the saddle member.
 8. The parapet clamp device of claim 7 wherein the horizontal strut is fixedly maintained to the body of the strut clamp.
 9. The parapet clamp device of claim 1, wherein the wall support end of the horizontal strut is fixedly maintained within the first leg of the L-connector, and further comprising the vertical strut, wherein the vertical strut is fixedly maintained within the second leg of the L-connector.
 10. A parapet clamp device, comprising:
 - a clamp arm assembly;
 - an L-connector;
 - a strut clamp slidably and fixedly engageable with the clamp arm assembly;
 - a horizontal strut comprising a wall support end, wherein the horizontal strut is slidably and fixedly engageable with the strut clamp and wherein the wall support end of the horizontal strut is slidably and fixedly engageable with the L-connector; and
 - a vertical strut slidably and fixedly engageable with the L-connector.
 11. The parapet clamp device of claim 10, wherein the strut clamp comprises a body and an arm extending perpendicularly from the body, wherein the body is hollow and has

an internal chamber, and further wherein the body is formed with a series of strut clamp body openings therein.

12. The parapet clamp device of claim 11, wherein the horizontal strut further comprises a series of horizontal strut openings, and wherein the horizontal strut is slidable through the internal chamber of the strut clamp body.

13. The parapet clamp device of claim 10, wherein the clamp arm assembly comprises a down tube, a clamp assembly movably secured to the down tube and a substantially U-shaped front pad secured to the down tube, wherein the front pad comprises a pair of parallel sides and a base formed with and extending perpendicularly to the parallel sides.

14. The parapet clamp device of claim 13, wherein the clamp assembly comprises a threaded rod, a knob and a clamping pad.

15. The parapet clamp device of claim 14, wherein the threaded rod is movably maintained within the down tube.

16. The parapet clamp device of claim 10, wherein the L-connector comprises a first leg and a second leg extending substantially perpendicularly to the first leg, wherein the first leg is securable to the wall support end of the horizontal strut, and wherein the second leg is securable to the vertical strut.

17. A parapet clamp device, comprising:

- a first parapet clamp comprising a first clamp arm assembly, a first strut clamp slidably and fixedly engageable with the first clamp arm assembly and a first horizontal strut slidably and fixedly engageable with the first strut clamp, wherein the first clamp arm assembly comprises a first clamp assembly comprising a first clamping pad, wherein the first strut clamp comprises a first strut clamp arm, and wherein the first clamp assembly is operable to move the first clamping pad toward and away from the first strut clamp arm so as to be secured around a building parapet at a first distance between the first strut clamp arm and the first clamping pad; and
- a second parapet clamp comprising a second clamp arm assembly, a second strut clamp slidably and fixedly engageable with the second clamp arm assembly and a second horizontal strut slidably and fixedly engageable with the second strut clamp, wherein the second clamp arm assembly comprises a second clamp assembly comprising a second clamping pad, wherein the second strut clamp comprises a second strut clamp arm, and wherein the second clamp assembly is operable to move the second clamping pad toward and away from the second strut clamp arm so as to be secured around a building parapet at a second distance between the second strut clamp arm and the second clamping pad, wherein the second distance is different from the first distance.

18. The parapet clamp device of claim 17, wherein the first parapet clamp further comprises a first L-connector and a first vertical strut, wherein the second parapet clamp further comprises a second L-connector and a second vertical strut, wherein the first horizontal strut and first vertical strut are fixedly secured to the first L-connector and wherein the second horizontal strut and second vertical strut are fixedly secured to the second L-connector.