UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT TRIAL AND APPEAL BOARD

Camel Manufacturing Company, LLC

Petitioner,

v.

DLX Enterprises, LLC,

Patent Owner.

Case No. PGR2024-_____

U.S. Patent No. 11,732,496

EXHIBIT 1022

REPORT OF SABIT ADANUR, Ph.D.

Dr. Sabit Adanur, as and for his expert opinion testimony in the above-captioned matter, declares and states as follows:

I. INTRODUCTION AND SUMMARY OF OPINION

- I have been retained by counsel to Camel Manufacturing Co. as an expert witness to investigate the validity of United States Patent No. 11,732,496 (the '496 patent).
- It is my professional opinion, to a reasonable degree of scientific and engineering certainty, that the '496 patent claims are not valid.
- The basis of this opinion is set forth below.

II. QUALIFICATIONS

1. Since 1992, I have been a Professor at Auburn University ("Auburn"), in Auburn, Alabama in the Departments of Textile Engineering, Polymer and Fiber Engineering and Mechanical Engineering.

2. At Auburn, I teach: (a) to undergraduate students, Kinematics and Dynamics (MECH 2140); and (b) to graduate students, Polymer Processing (MECH 5520/PFEN 6200) and Engineered Fibrous Structures (MECH 5320) – in both classes I teach fibers, yarns, fabrics, fabric structures and textile machinery and equipment.

3. I have a Bachelor of Science ("B.S.") degree in Mechanical Engineering from Istanbul Technical University, Istanbul, Turkey, a Master of

Science ("M.S.") degree in Textile Engineering and Science, and a Ph.D. degree in Fiber and Polymer Science, both from North Carolina State University, Raleigh, N.C.

4. I did my M.S. and Ph.D. research in fibers, yarns, fabrics, fabric structures, textile machinery and equipment, and published the results in journal articles. A copy of my *curriculum vitae* ("C.V.") is annexed as Exhibit 1023.

5. I am an expert in polymers, fibers, fabrics design, manufacturing, testing and analysis, fabric structures, textile machinery and equipment. I wrote Wellington Sears Handbook of Industrial Textiles in which tent and shelter structures are covered in Chapter 6 Architectural and Construction Textiles (see C.V). I have more than 30 years of experience in research and teaching polymers, fibers, yarns, fabrics, fabric structures, and composites, including labs. I have written four textile books in these areas. *See* C.V. (Ex. 1023).

6. I reserve the right to amend or supplement this statement.

III. DOCUMENTS AND INFORMATION REVIEWED AND RELIED UPON

7. The documents and photographs that I reviewed in reaching the conclusions expressed in this statement are set forth in Exhibits 1001, 1014, 1015, 1016, 1017, and 1018.

IV. CLAIM CONSTRUCTION

8. In a post-grant review proceeding, a claim of a patent should be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. Section 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R Section 42.200.

9. There are no prior decisions construing the claims of the ‘496 Patent to the knowledge of Petitioner.

10. The terms included in the claims of the ‘496 Patent should be construed as follows:

US Patent No. 11,732,496	**Claim construction**
adjacent	Next to
angle alpha a	An angle formed by two poles
center frame assembly	A set of poles extending outwardly from a center point to the peak of a frame side
collapsing position	No construction needed; plain and ordinary meaning applies.
corner	The trapezoidal space between the leg poles of a hub shelter

US Patent No. 11,732,496	Claim construction
deployed position	No construction needed; plain and ordinary meaning applies.
footer	A structure that supports a leg pole on a ground surface
frame	Structure that creates or defines a space
frame back end	No construction needed; plain and ordinary meaning applies.
frame front end	No construction needed; plain and ordinary meaning applies.
frame opposite side	No construction needed; plain and ordinary meaning applies.
frame peak	The highest point of a frame side
frame side	No construction needed; plain and ordinary meaning applies.
hub shelter	A central shelter to which other shelters can be attached to radiate outward from the central shelter
leg	Same as a leg pole
leg pole	A pole connecting an upper frame pole of a hub shelter to the ground

US Patent No. 11,732,496	Claim construction
offset	Not in the same plane
opening	No construction needed; plain and ordinary meaning applies.
peak	No construction needed; plain and ordinary meaning applies.
pole	No construction needed; plain and ordinary meaning applies.
rapid deployment	Can be erected quickly
shoulder	A connector between an upper frame pole and a leg pole
shoulder support	A pole extending between adjacent shoulders of a hub shelter
support	No construction needed; plain and ordinary meaning applies.
trapezoidal	In the shape of a trapezoid, which is a quadrilateral that has at least one pair of parallel sides. The parallel sides are called the bases of the trapezoid; the other two sides are called the legs or the lateral sides. See https://en.wikipedia.org/wiki/Trapezoid.

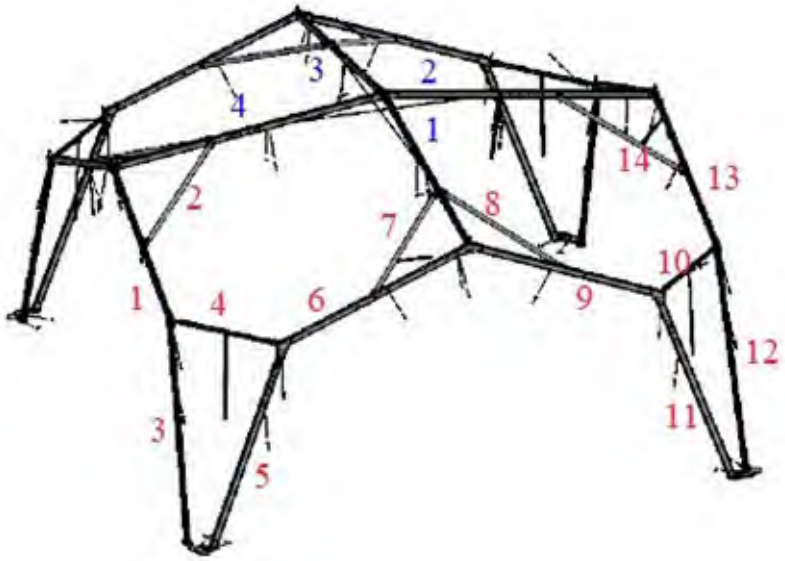
US Patent No. 11,732,496	Claim construction
upper frame pole	A pole forming the two upper portions of a quadrangular side of a hub shelter

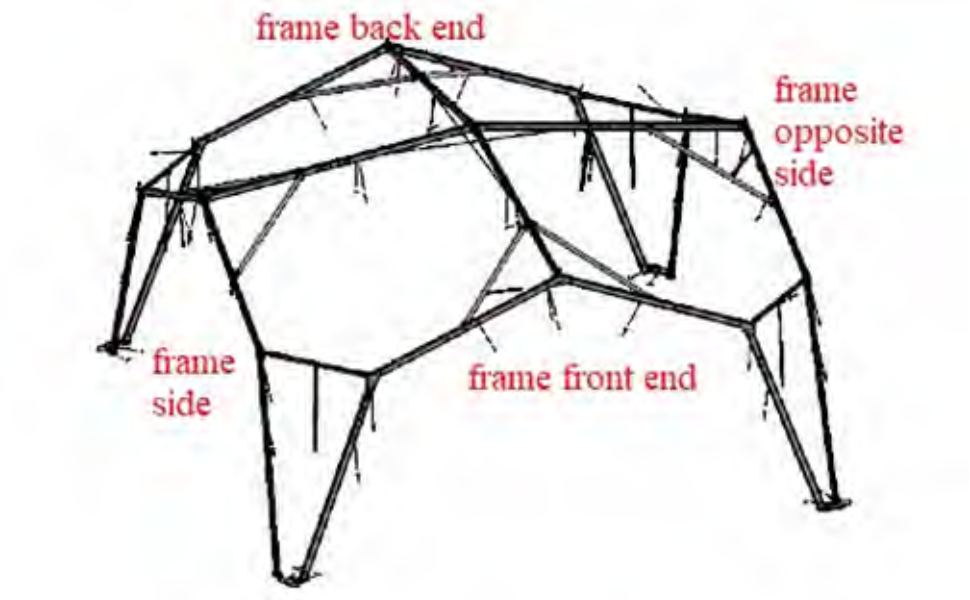
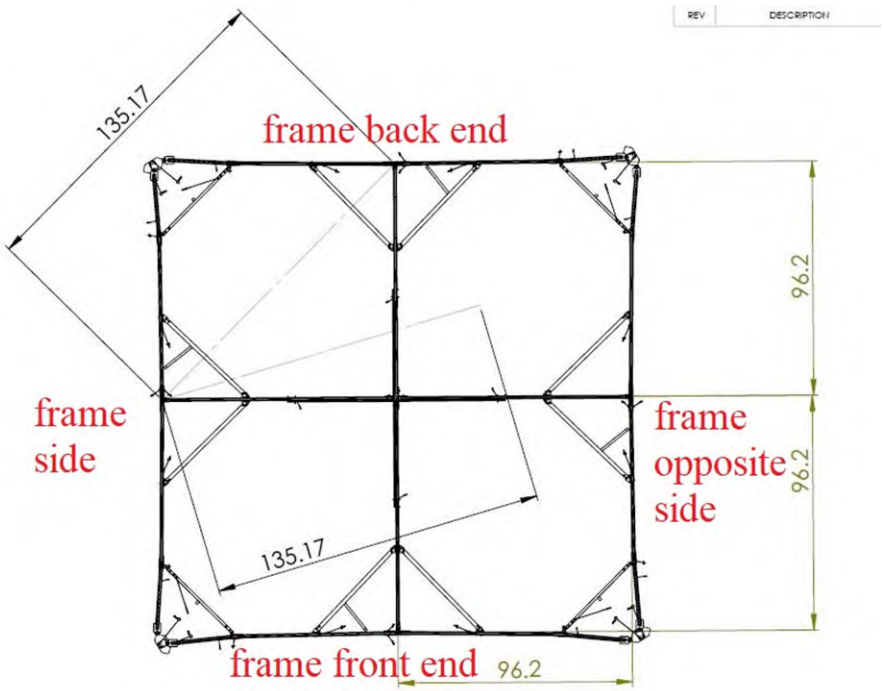
The claim constructions are based on how the terms are used in the '496 Patent. The source of each term of the claims of the '496 Patent can be found in Ex. 1014, which identifies the corresponding element number for each claim term and identifies where in the '496 Patent the term is used.

11. Each limitation of each claim of the '496 Patent is found in one or more of Exhibits 1015, 1016, 1017, and 1018, as set forth in the following chart.

US Patent No. 11,732,496	Notes
1. A rapid-deployment hub shelter comprising:	There is no proof in the 496 patent that the hub shelter provides rapid deployment. There are no time studies indicated in the patent that compare the deployment time of this hub shelter with other commercially available hub shelters to provide an advantage. Hub shelters have been used for centuries. Considering the low number of parts shown in photos C and EE and in Sheet 1-B of Drawing No. PHB-000-CMC, these shelter structures can be considered to be rapid-deployment hub shelter. The number of parts is shown in the photos below.

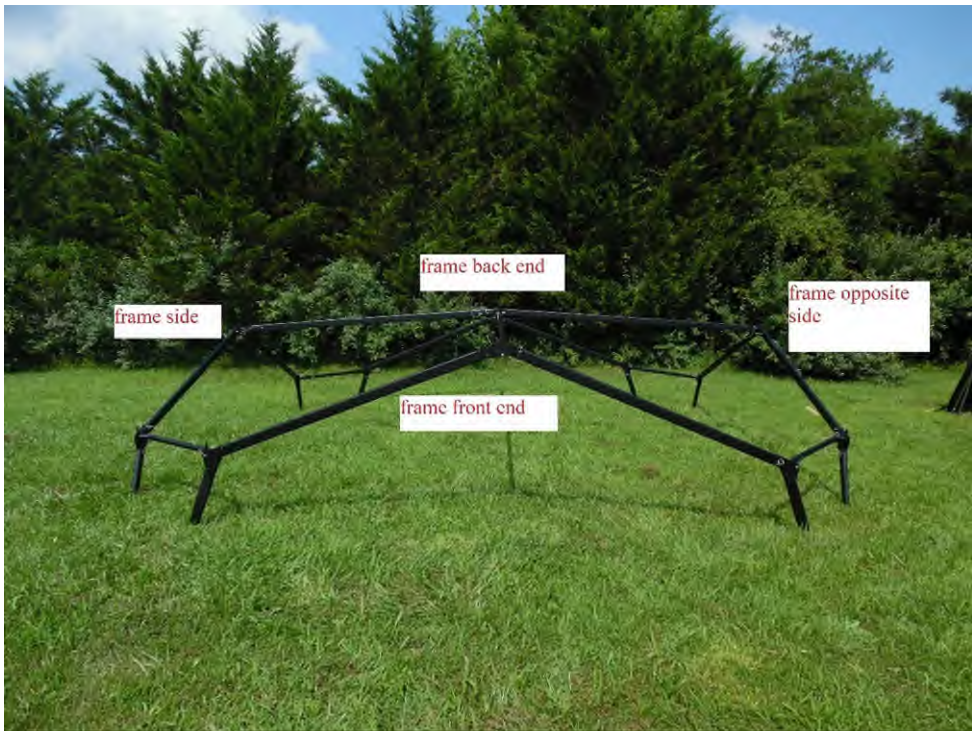
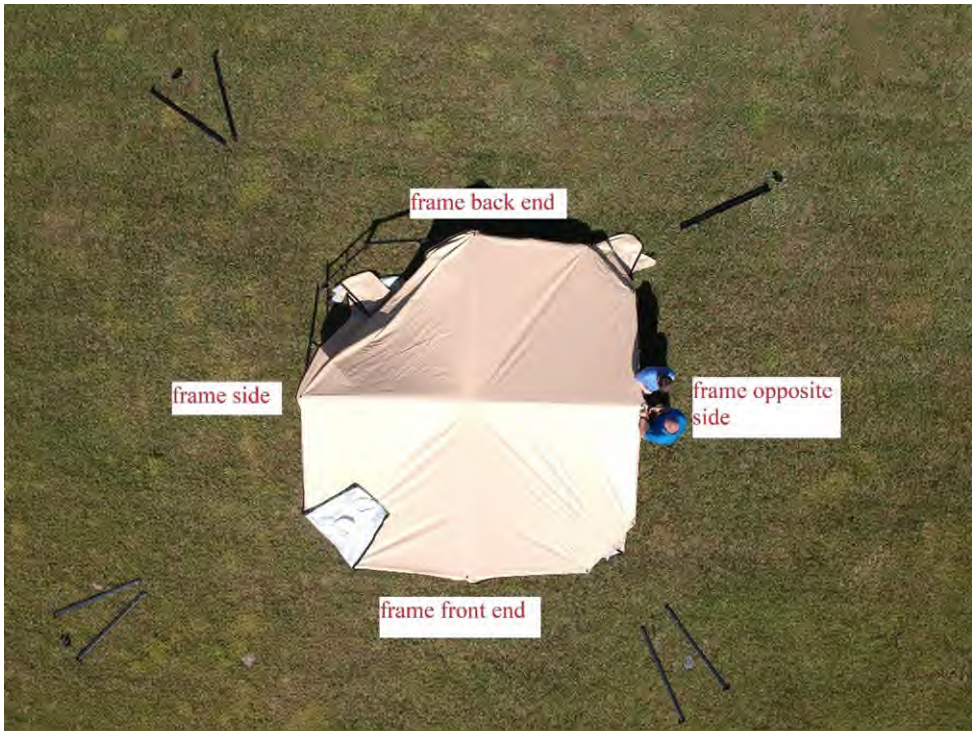
US Patent No. 11,732,496	Notes
	 Photo C (24 frame poles in the picture, not including shoulders).  Photo EE (24 frame poles in the picture, not including shoulders).

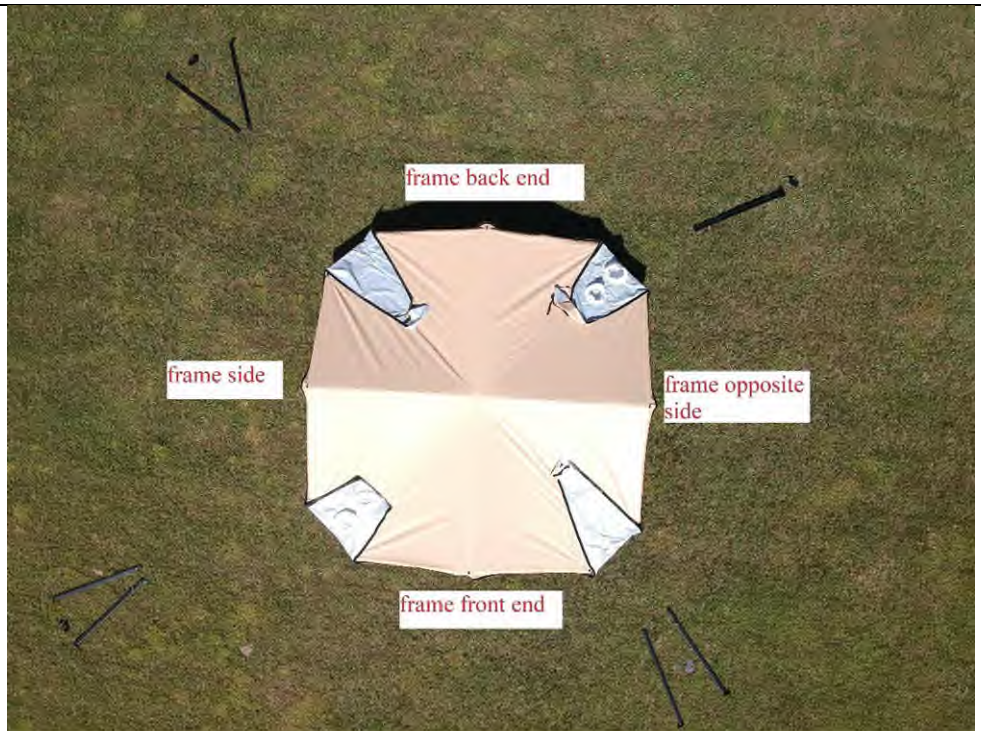
US Patent No. 11,732,496	Notes
	 Sheet 1-B (14x2+4 = 32 total frame poles not including shoulders).
a frame for supporting the shelter, the frame including a frame front end, a frame back end, a frame side, and a frame opposite side,	PHB-000-CMC Sheets 1 and 2 show a frame for supporting the shelter that includes a frame front end, a frame back end, a frame side and a frame opposite side.

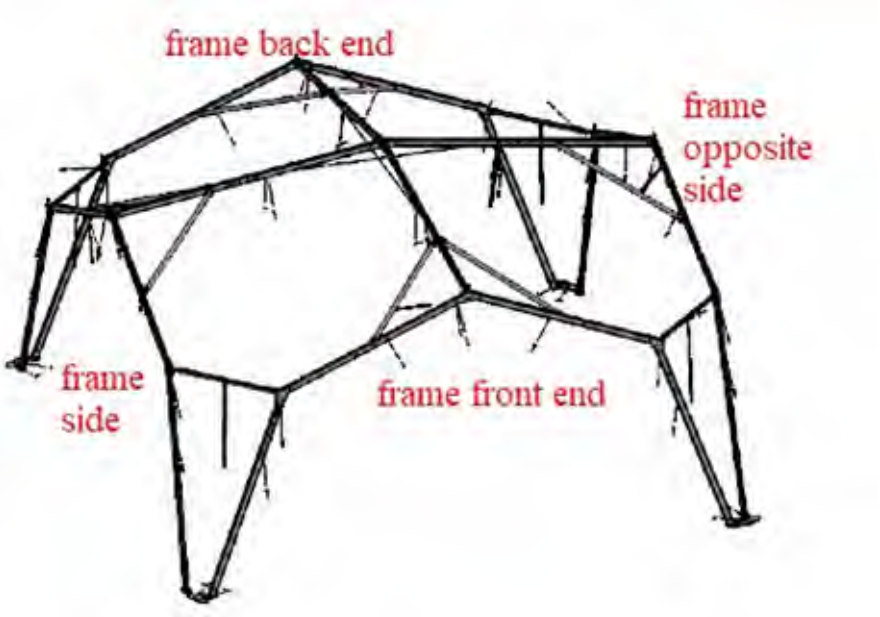
US Patent No. 11,732,496	Notes
	 Sheet 1-b  Sheet 2

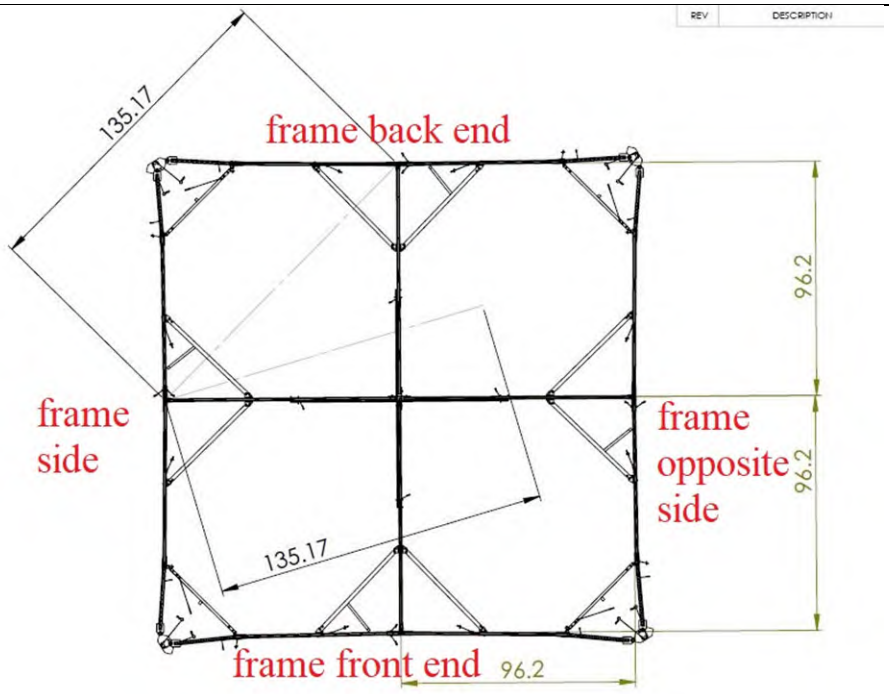
US Patent No. 11,732,496	Notes
	Photos AA, BB, C, DD, EE, V, W, X, Y and Z show a frame for supporting the shelter that includes a frame front end, a frame back end, a frame side and a frame opposite side.  Photo AA (identical to Photo Z)

US Patent No. 11,732,496	Notes
	 Photo BB (Photo BB is different angle of Photo DD)  Photo C

US Patent No. 11,732,496	Notes
	 Photo EE  Photo V

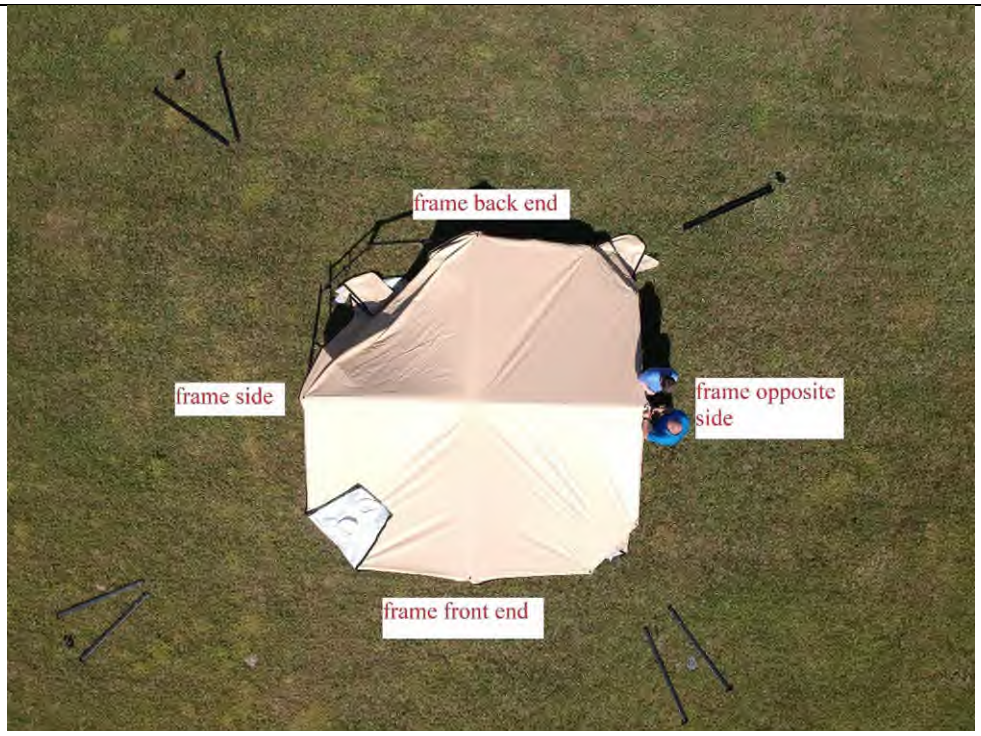
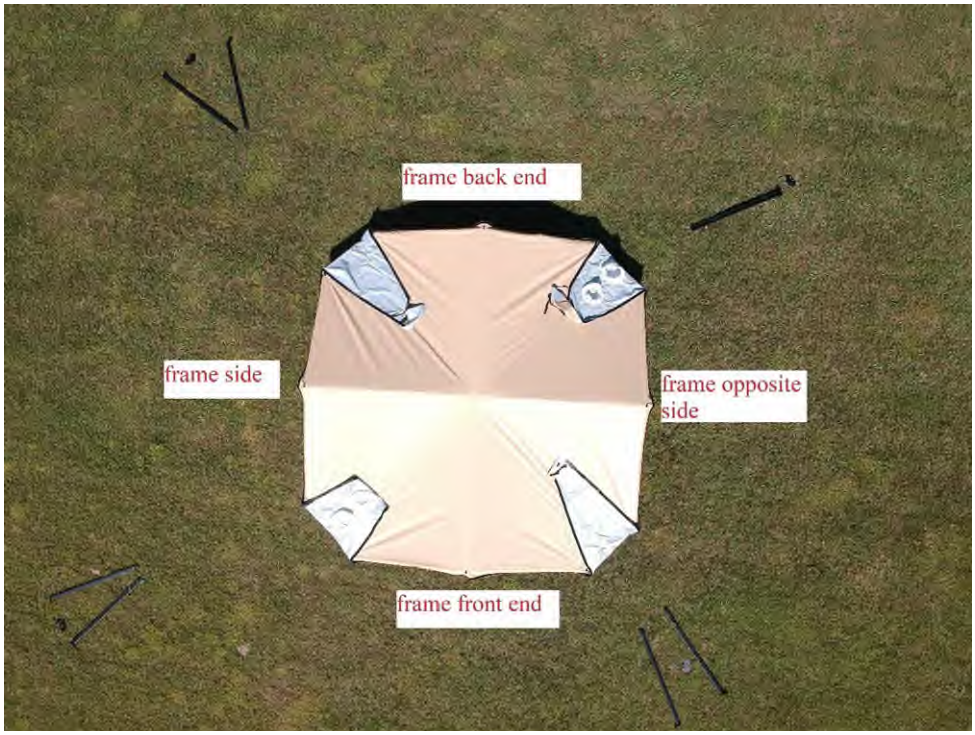
US Patent No. 11,732,496	Notes
	 Photo W (similar to Photo X)  Photo Y

US Patent No. 11,732,496	Notes
	Frames have been used for centuries to support tents and shelters with 3, 4 or more sides.
the frame front end, frame back end, frame side and frame opposite side each having:	PHB-000-CMC Sheets 1 and 2 show a frame for supporting the shelter that includes a frame front end, a frame back end, a frame side and a frame opposite side.  Sheet 1-B

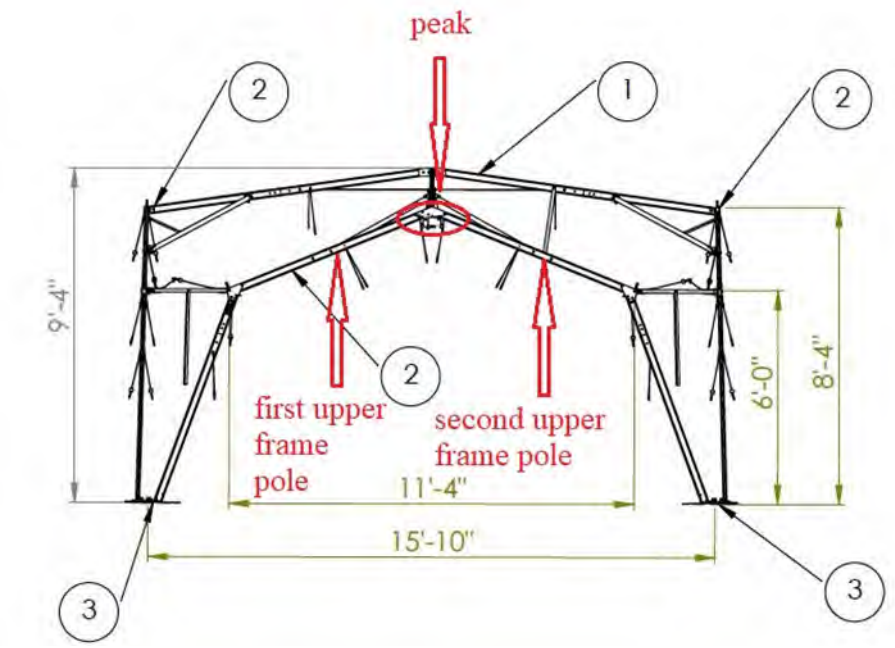
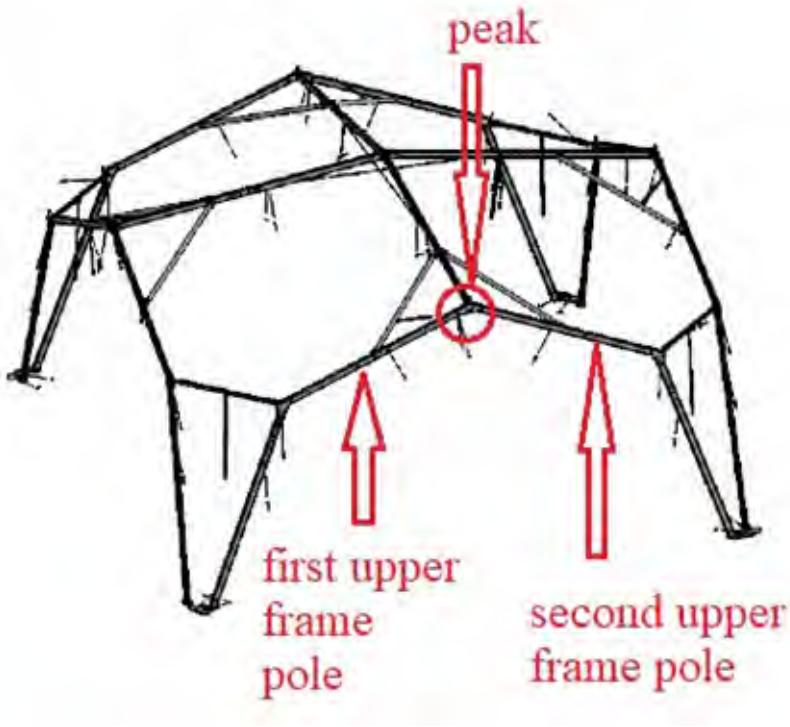
US Patent No. 11,732,496	Notes
	 Sheet 2 Photos AA, BB, C, DD, EE, V, W, X, Y and Z show a frame for supporting the shelter that includes a frame front end, a frame back end, a frame side and a frame opposite side.

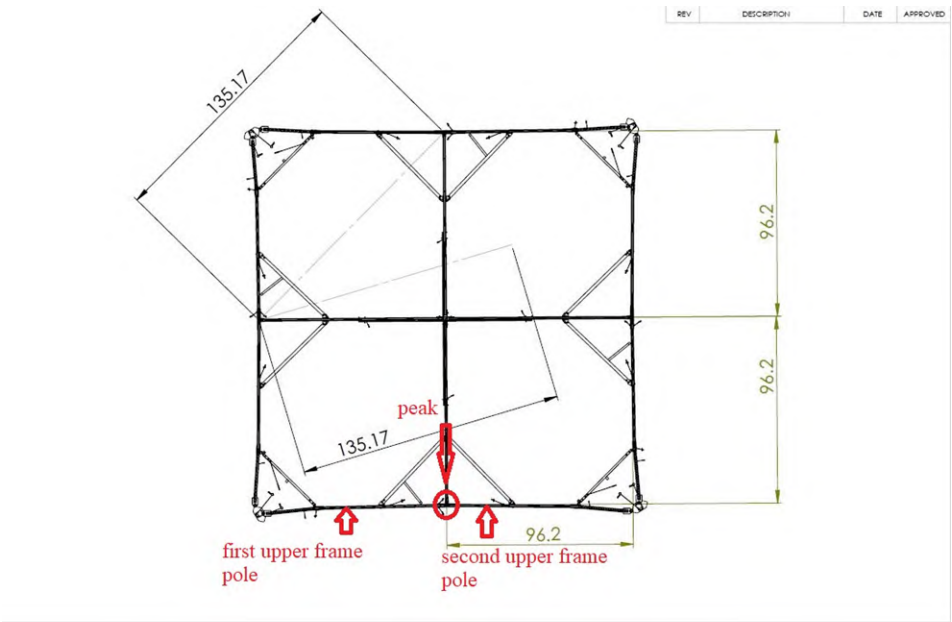
US Patent No. 11,732,496	Notes
	 Photo AA (Photos Y and Z are similar)  Photo BB (Photo BB is different angle of Photo DD)

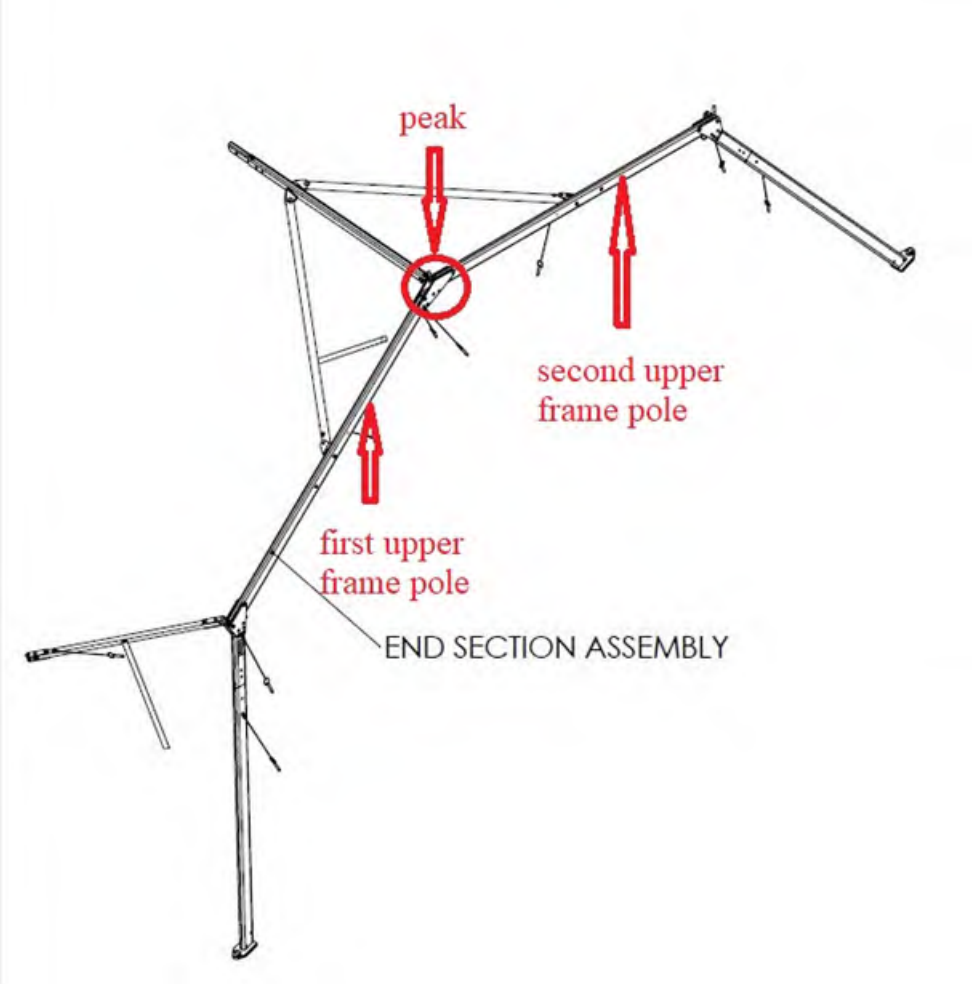
US Patent No. 11,732,496	Notes
	 Photo C  Photo EE

US Patent No. 11,732,496	Notes
	 Photo V  Photo W (similar to Photo X)

US Patent No. 11,732,496	Notes
	 Photo Y Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. A fabric cannot support itself to be hung in the air without an external support such as a frame. A fabric cannot stand and retain a structural shape without a support such as frame in a shelter. Frame front end, frame back end, frame side and frame opposite side have been used in shelters for centuries.
a first upper frame pole and a second upper frame pole, the first upper	PHB-000-CMC Sheet 1 shows a first upper frame pole and a second upper frame pole, and they are joined at peak.

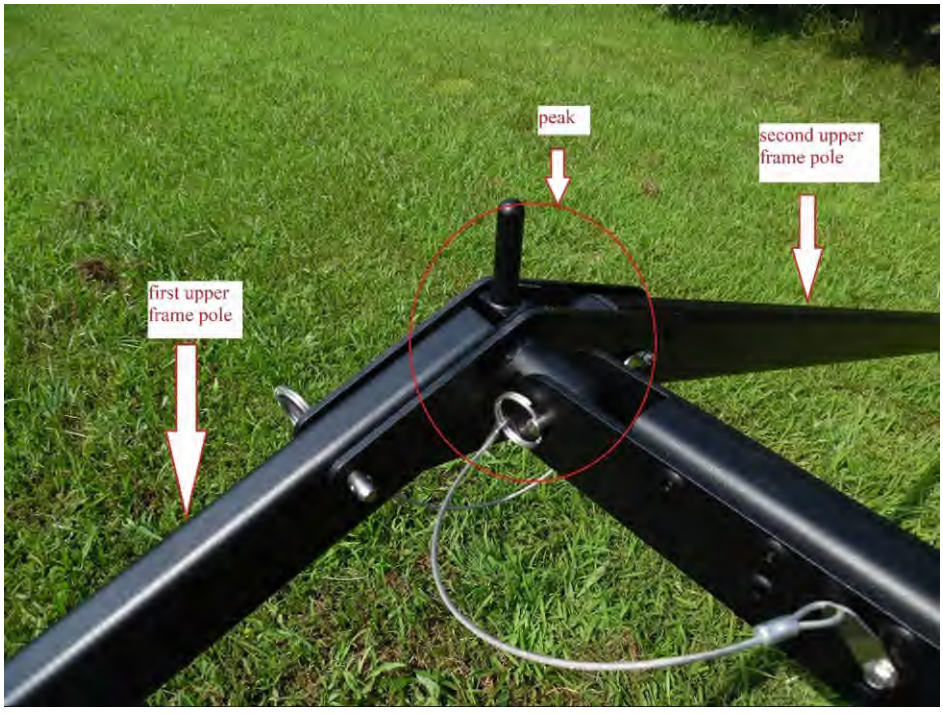
US Patent No. 11,732,496	Notes
frame pole and the second upper frame pole joined at peak,	 Sheet 1-A  Sheet 1-B

US Patent No. 11,732,496	Notes
	Sheet 2 shows a first upper frame pole and a second upper frame pole that are joined at peak.  Sheet 2 Sheet 3 shows an upper frame pole to be joined with another upper frame pole at peak.

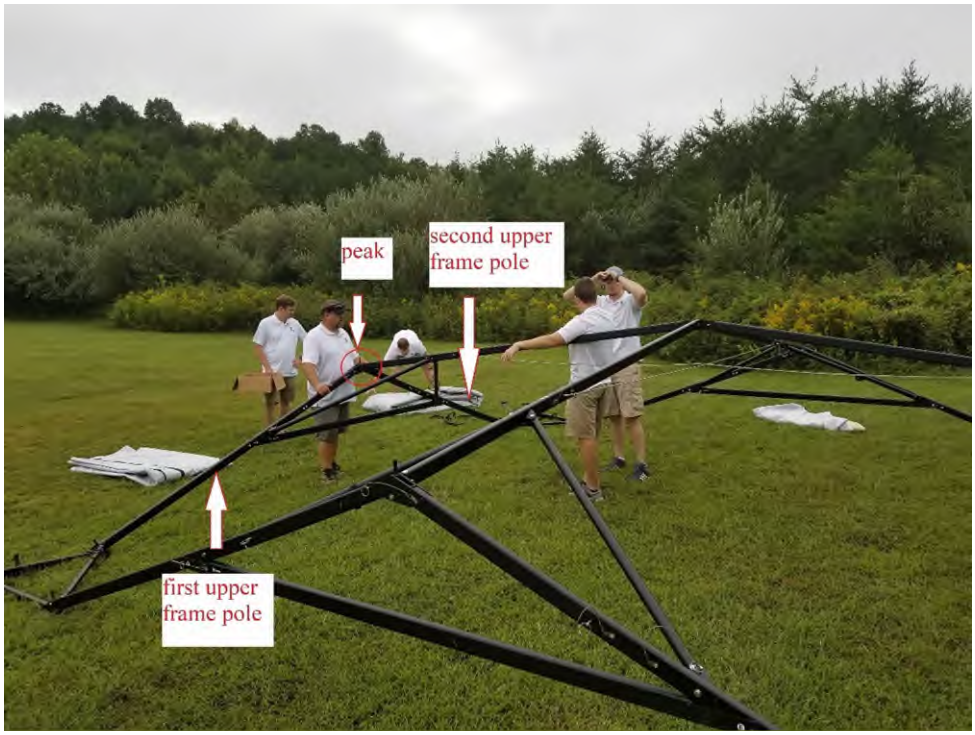
US Patent No. 11,732,496	Notes
	 Sheet 3 Photos A, AA, B, BB, C, CC, DD, E, EE, J, K, L, M, N, O, P, S, V, W, X, Y and Z show a first upper frame pole and a second upper frame pole that are joined at peak.

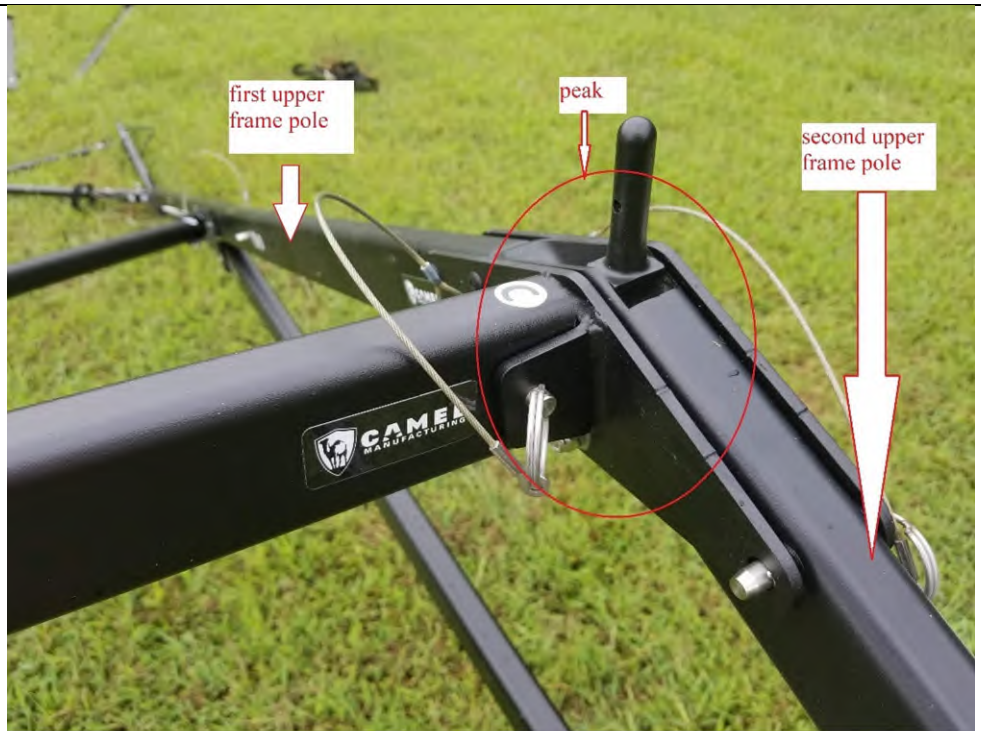
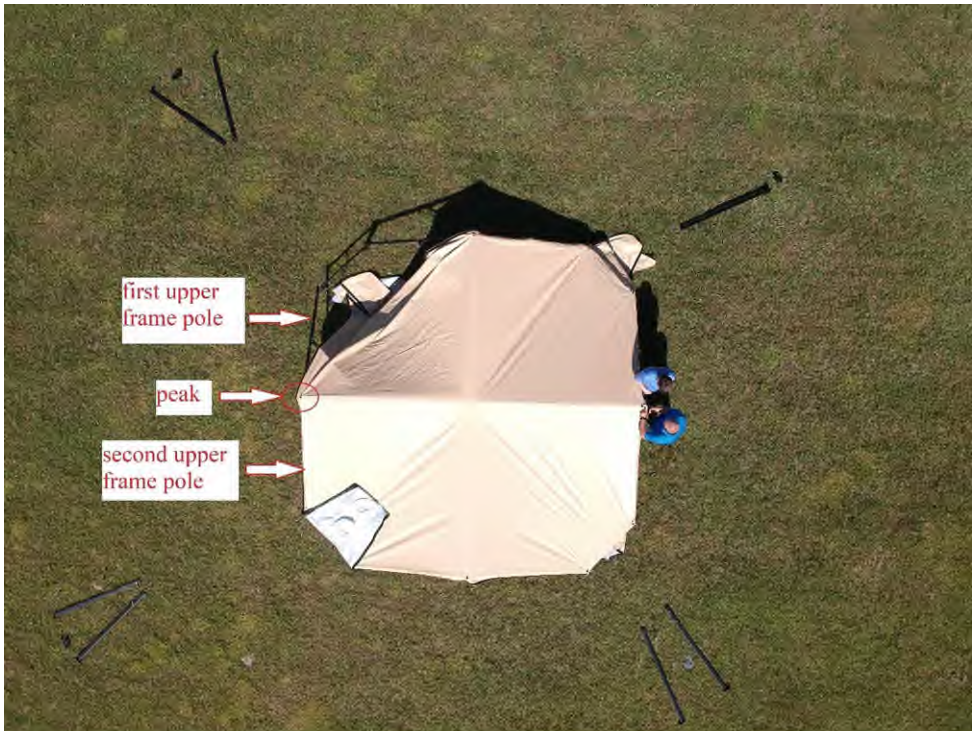
US Patent No. 11,732,496	Notes
	 Photo A  Photo AA (Photos Y and Z are similar)

US Patent No. 11,732,496	Notes
	 Photo B  Photo BB (Photo CC and Photo DD are similar)

US Patent No. 11,732,496	Notes
	 Photo C (Photo EE is similar)  Photo E

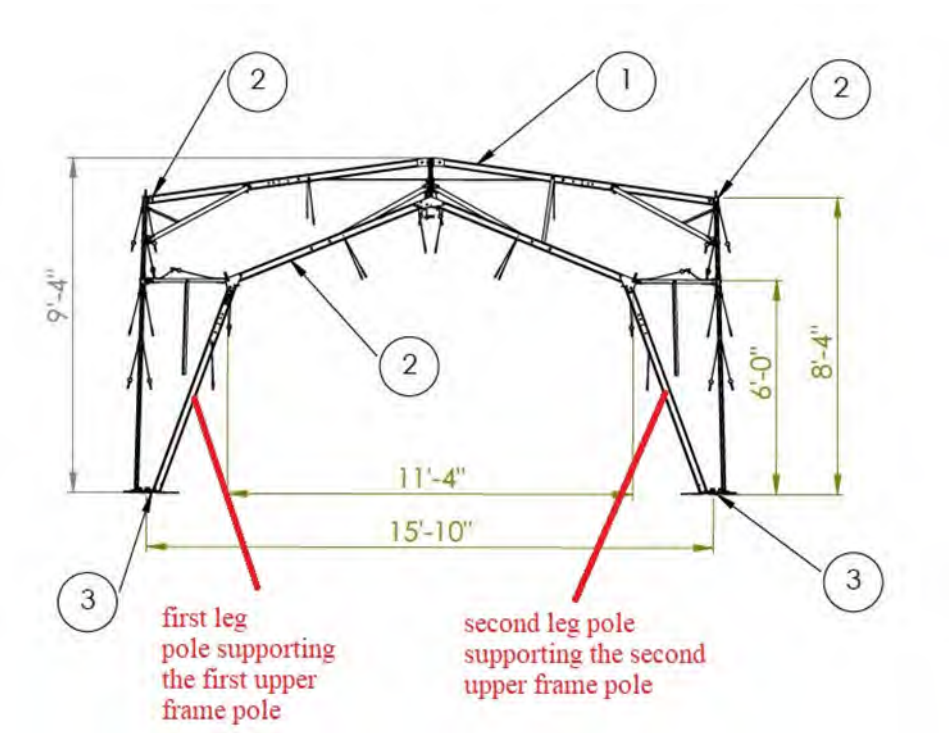
US Patent No. 11,732,496	Notes
	 Photo J (Photos L, N and O are similar)  Photo K

US Patent No. 11,732,496	Notes
	 Photo M  Photo P

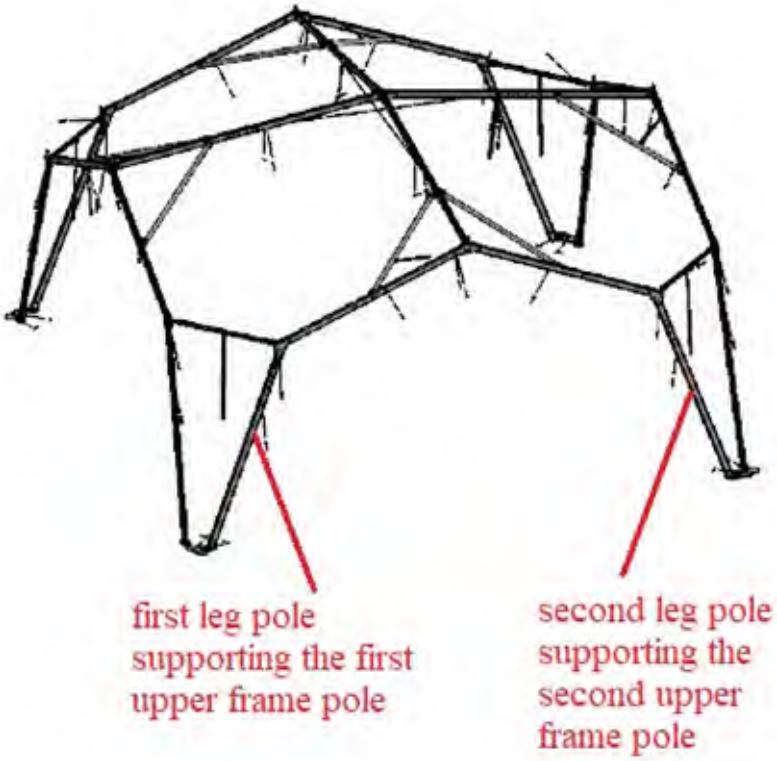
US Patent No. 11,732,496	Notes
	 Photo S  Photo V (Photos W and X are similar)

US Patent No. 11,732,496	Notes
	Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. A fabric cannot support itself to be hung in the air without an external support such as a frame pole. A fabric cannot stand without a support such as frame pole in a shelter. Multiple upper frame poles have been used for centuries in tent and shelter structures.

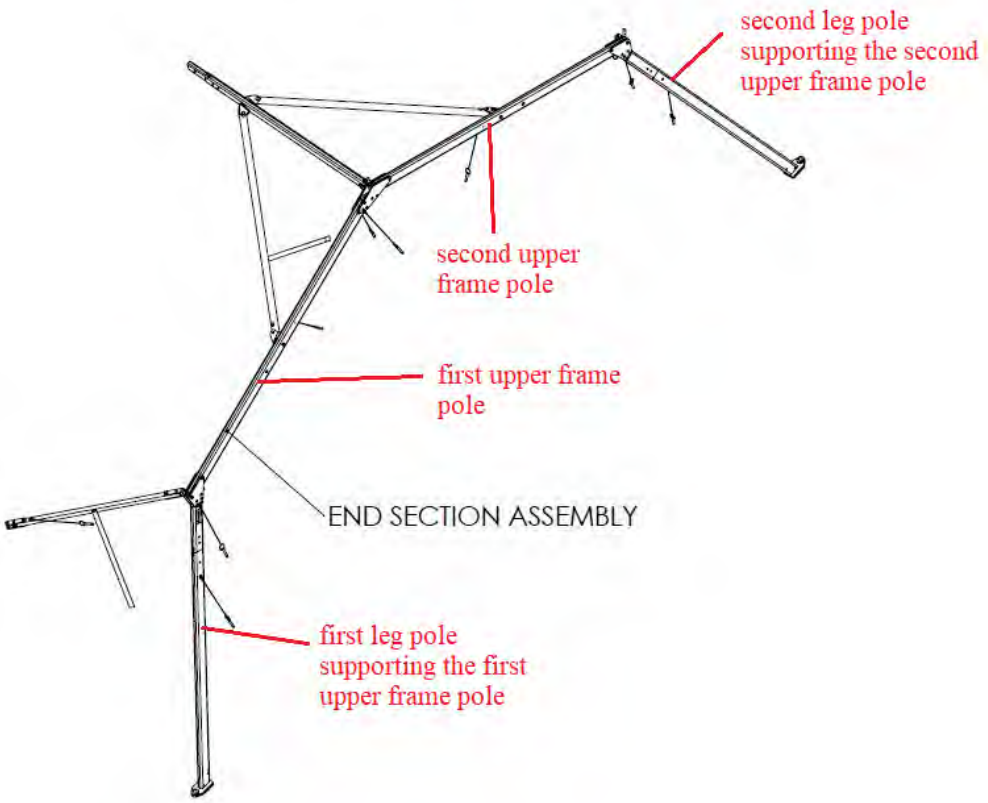
a first leg pole supporting the first upper frame pole and a second leg pole supporting the second upper frame pole,	Sheet 1 shows a first leg pole supporting the first upper frame pole and a second leg pole supporting the second upper frame pole. Sheet 3 shows a first leg pole supporting the first upper frame pole. For a person of skill in the art (POSITA), it is clear that to have a shelter, there must be a second leg pole supporting a second upper frame pole. In fact, there must be at least 3 sets of these to have a shelter.



Sheet 1- A


first leg pole supporting the first upper frame pole
second leg pole supporting the second upper frame pole

Sheet 1-B



Sheet 3

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M, N, O, P, V, W, X, Y and Z show a first leg pole supporting the first upper frame pole and a second leg pole supporting the second upper frame pole.



Photo A (Photos B, J, K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)



Photo BB (Photos CC and DD are similar)



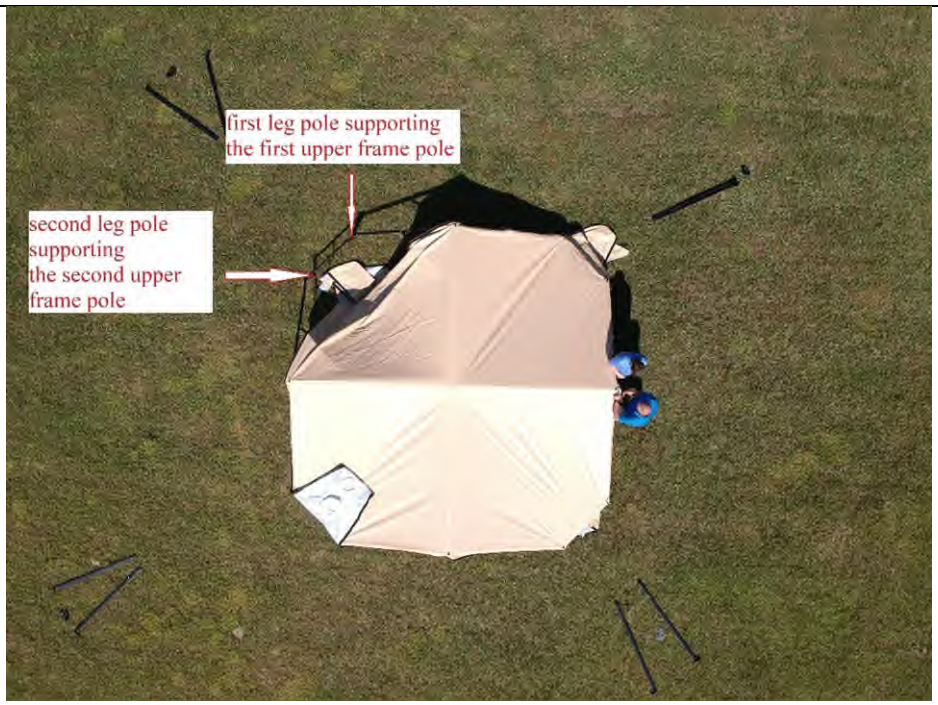
Photo C (Photos D and EE are similar)

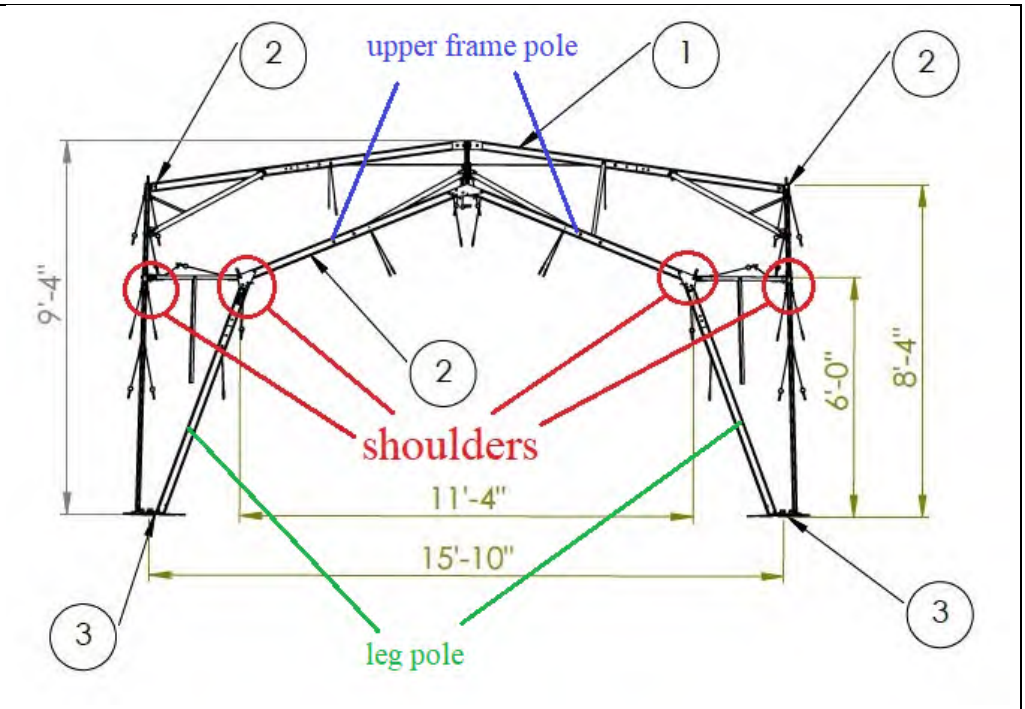


Photo M

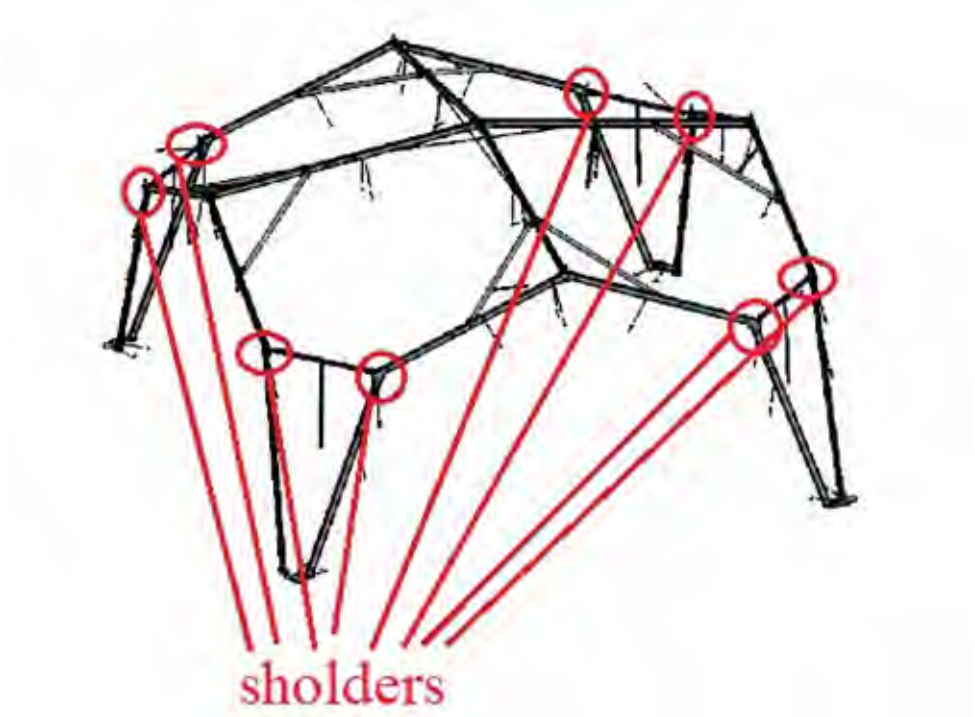


Photo P

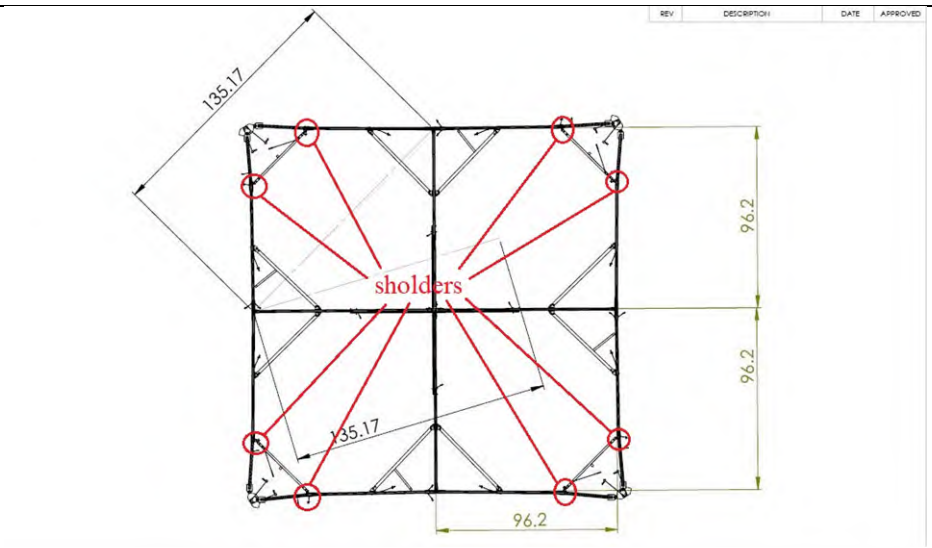
	 Photo V (Photos W and X are similar) Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. A fabric cannot support itself to be hung in the air without an external support such as a frame pole. A fabric cannot stand without a support such as frame pole in a shelter. Skirt of a shelter fabric cannot support itself to stay erected to form a shelter. Multiple leg poles have been used for centuries to support the upper frame poles.
a shoulder formed between each upper frame pole and each attaching leg pole,	Sheets 1, 2 and 3 show a shoulder between each upper frame pole and each attaching leg pole. In fact, there are multiple shoulders shown in these Sheets.



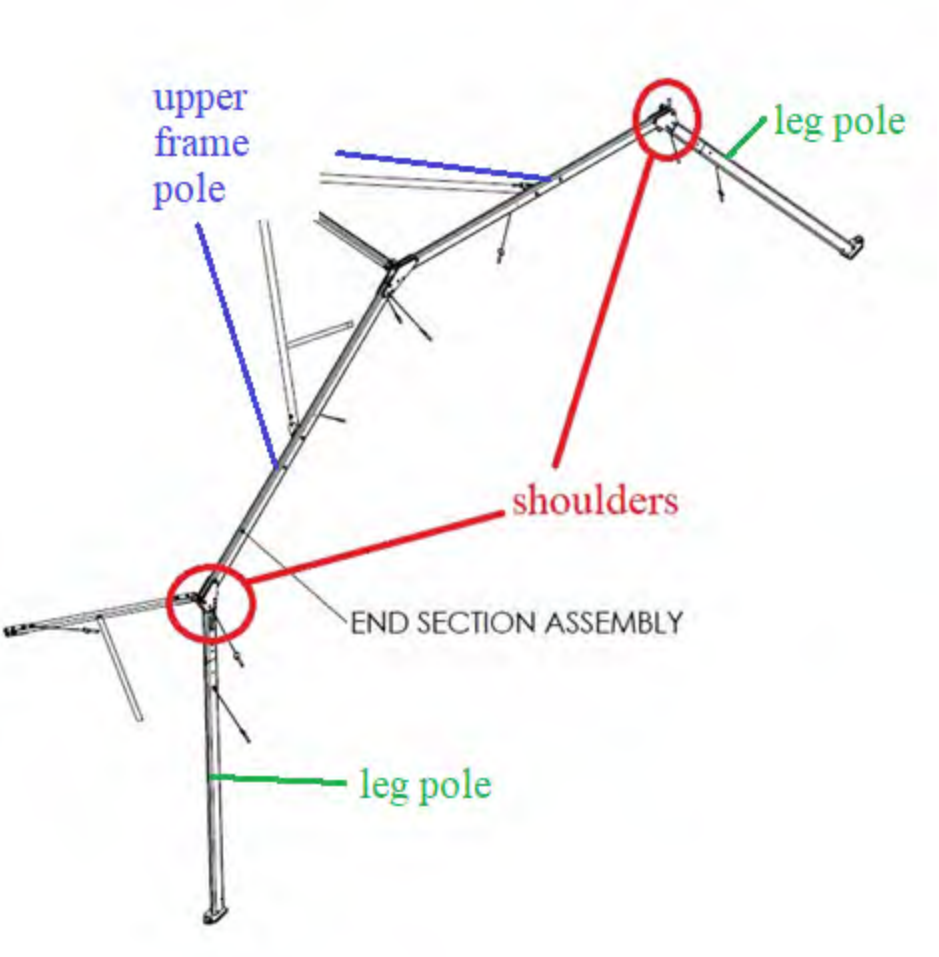
Sheet 1-A



Sheet 1-B



Sheet 2



Sheet 3-A

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M, N, O, P, V, W, X, Y and Z show shoulders formed between upper frame poles and attaching leg poles.



Photo A (Photos K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)



Photo B



Photo BB (Photos CC and DD are similar)



Photo C (Photo EE is similar)



Photo D



Photo J



Photo M



Photo P

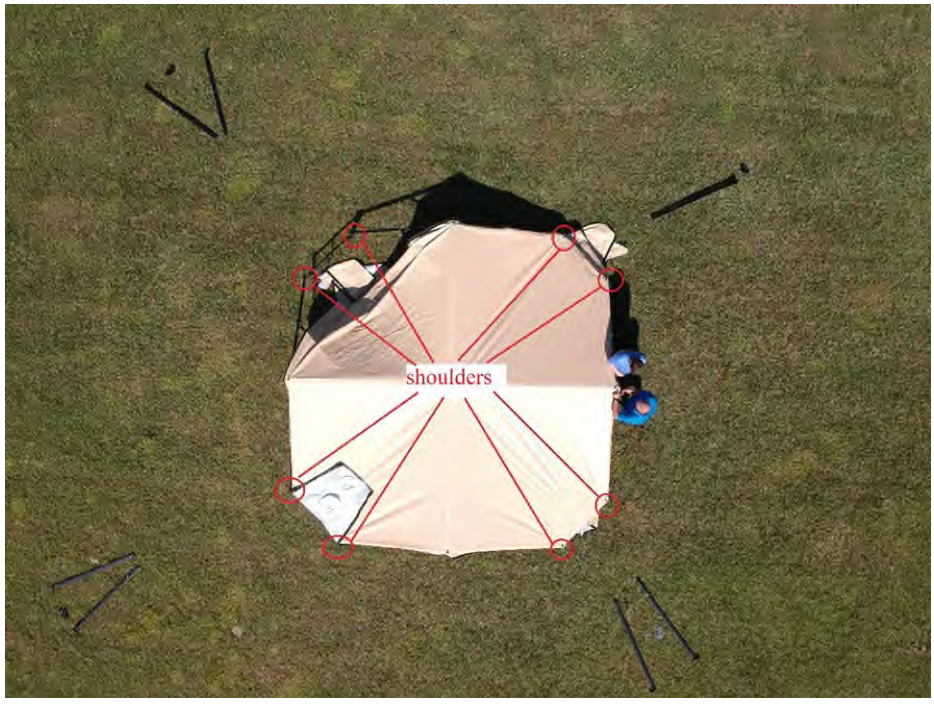
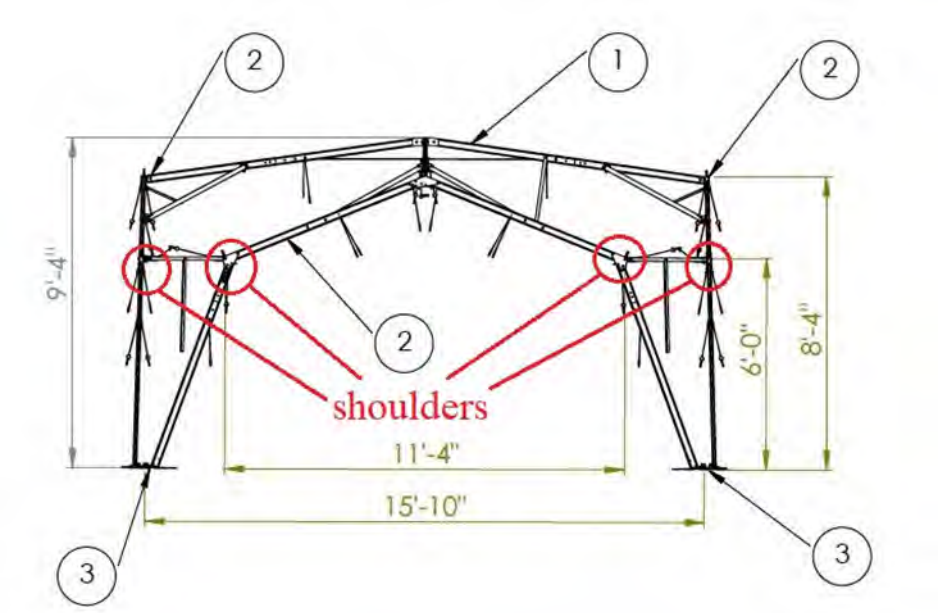
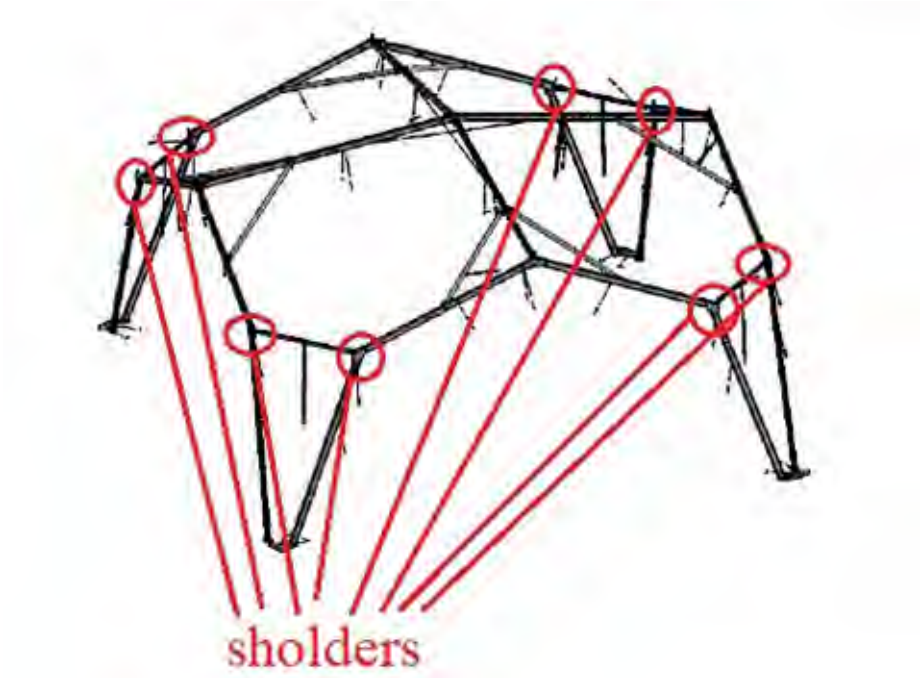
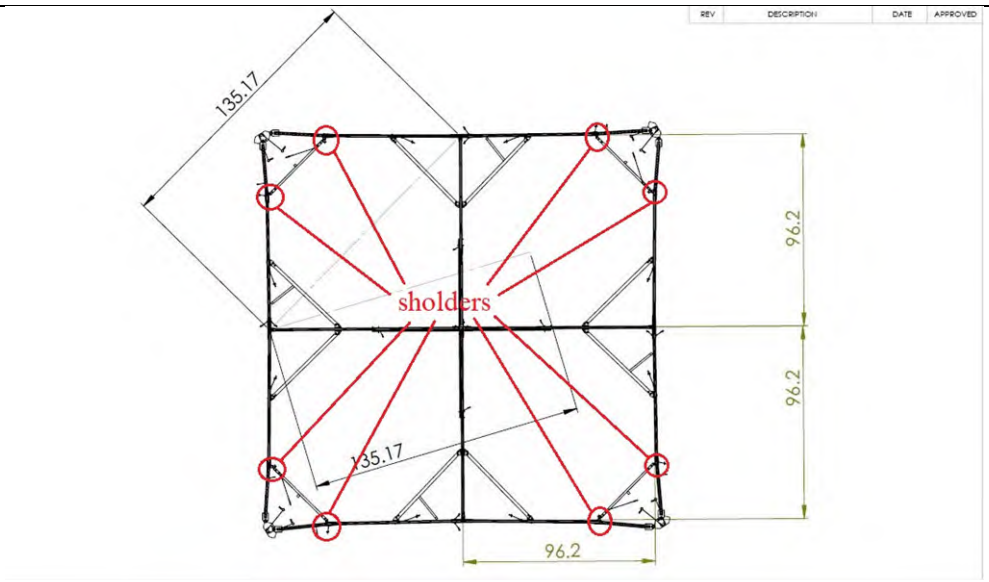


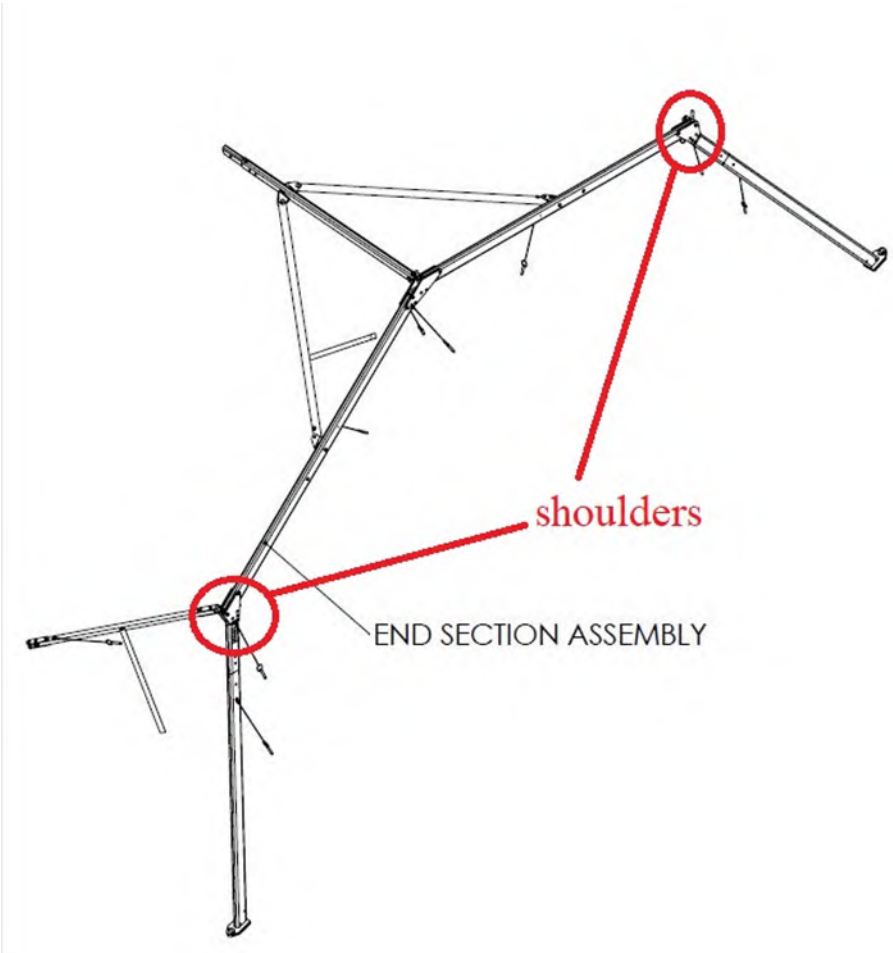
Photo V (Photos W and X similar)

Shoulders have been standard features of shelters for centuries.

a shoulder formed between each second upper frame pole and each attaching second leg pole,	Sheets 1, 2 and 3 show a shoulder between each upper frame pole and each attaching leg pole. In fact, there are multiple shoulders shown in these Sheets.  Sheet 1-A  Sheet 1-B



Sheet 2



Sheet 3-A

	Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M, N, O, P, V, W, X, Y and Z show shoulders formed between upper frame poles and attaching leg poles.  Photo A (Photos K, L, N and O are similar)  Photo AA (Photos Y and Z are similar)



Photo B



Photo BB (Photos CC and DD are similar)



Photo C (Photo EE is similar)



Photo D



Photo J



Photo M



Photo P

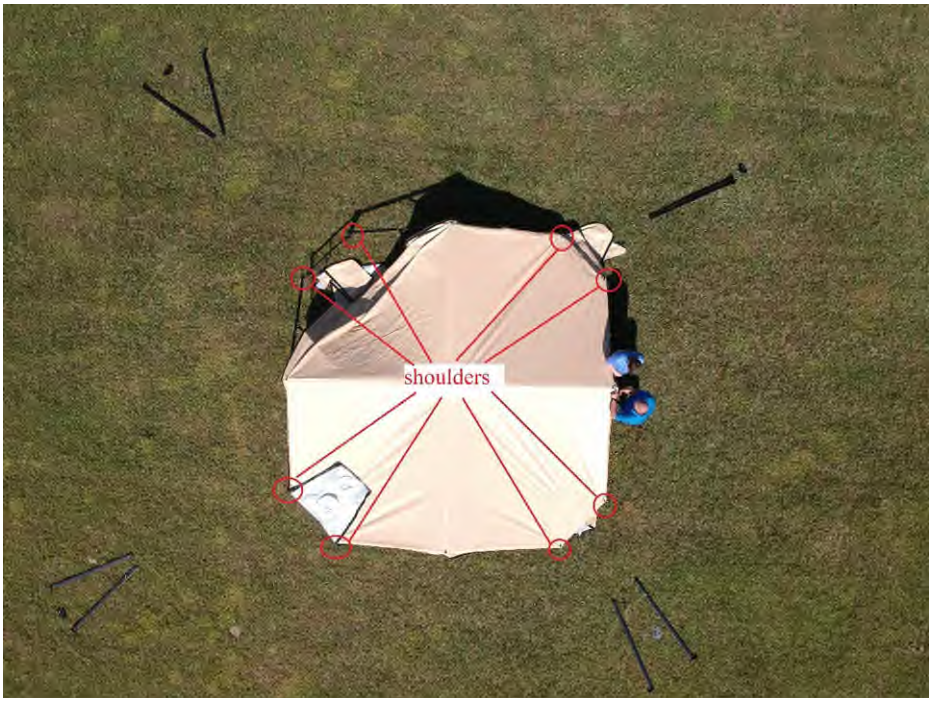
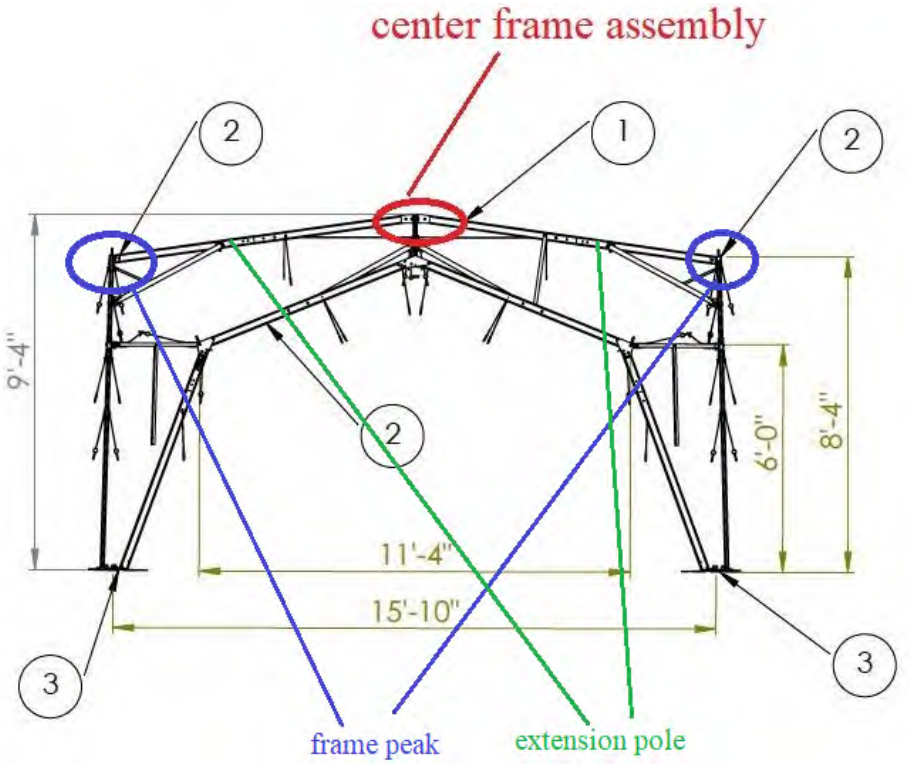
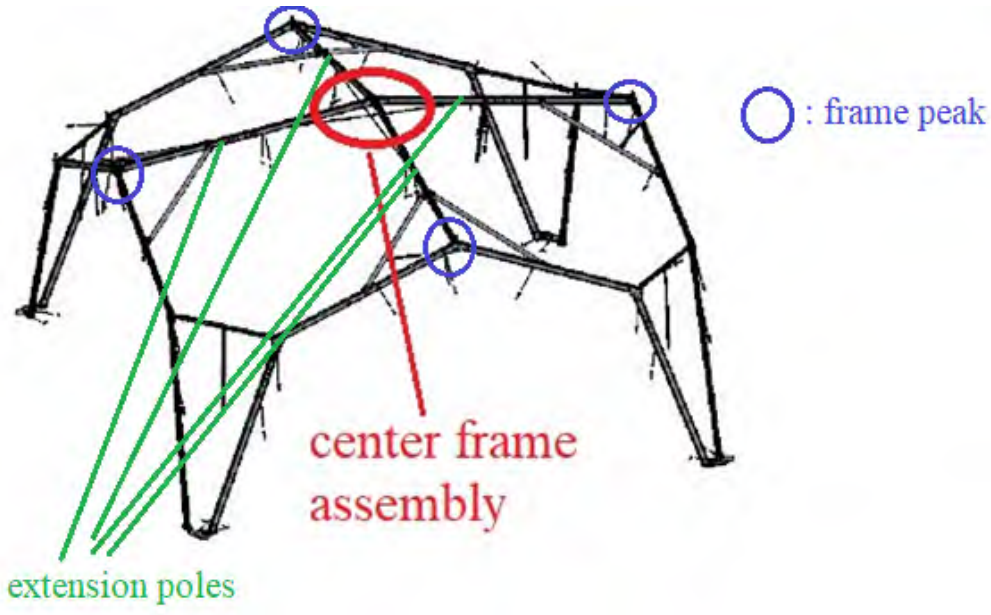
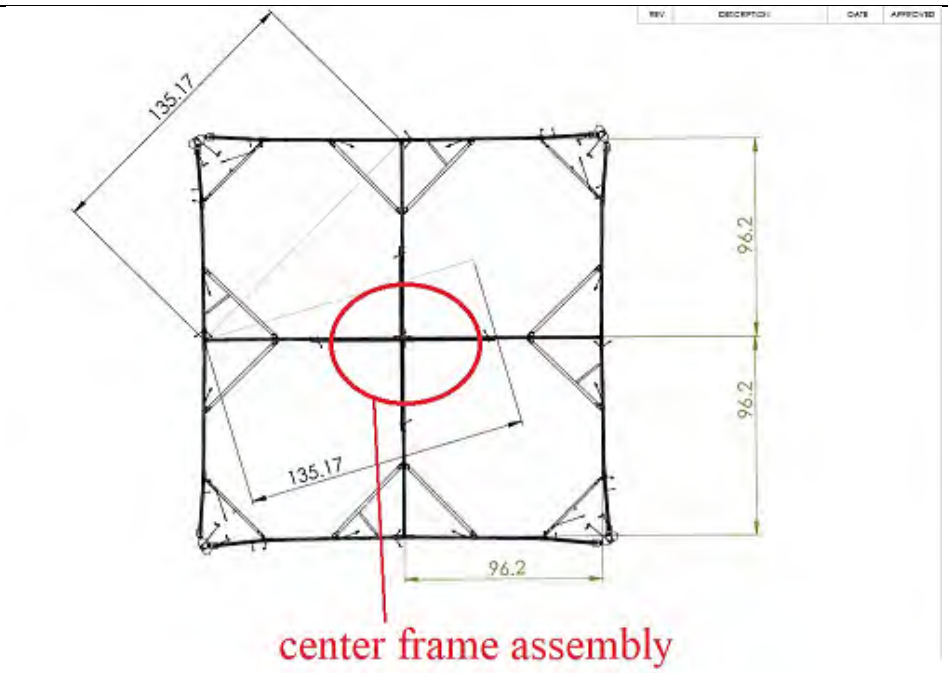


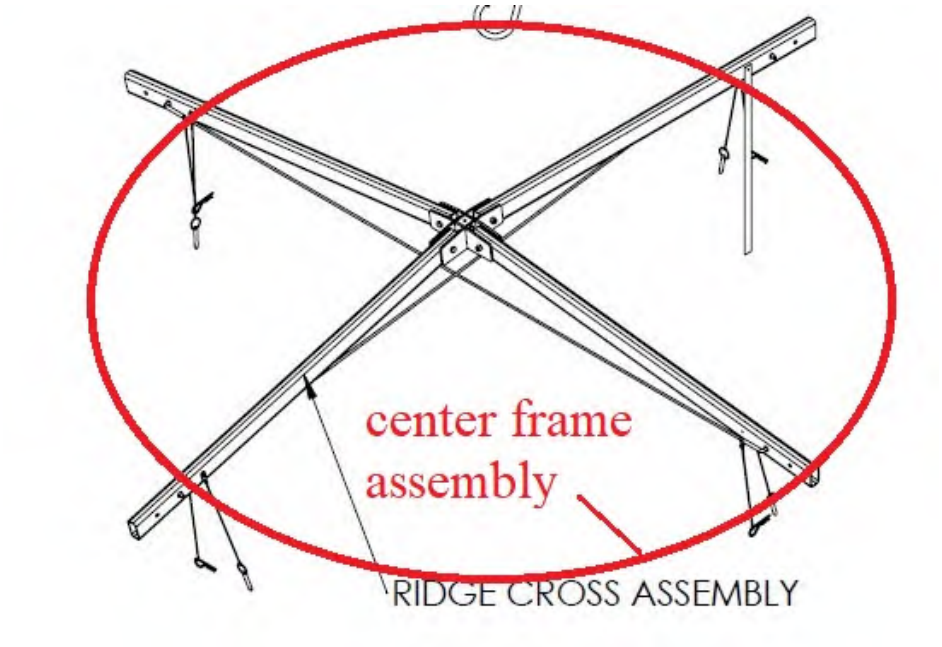
Photo V (Photos W and X similar)

Shoulders have been standard features of shelters for centuries.

a center frame assembly having a set of extension poles that extend outwardly from a center point to each frame peak,	Sheets 1, 2 and 3 show a center frame assembly that have a set of extension poles that extend outwardly from a center point to each frame peak.  Sheet 1-A  Sheet 1-B



Sheet 2



Sheet 3

Photos AA, BB, C, CC, DD, EE, F, P, V, W, X, Y and Z show a center frame assembly with a set of extension poles that extend outwardly from a center point to each frame peak.



Photo AA (Photos Y and Z are similar)



Photo BB (Photos CC and DD are similar)



Photo C (Photo EE is similar)

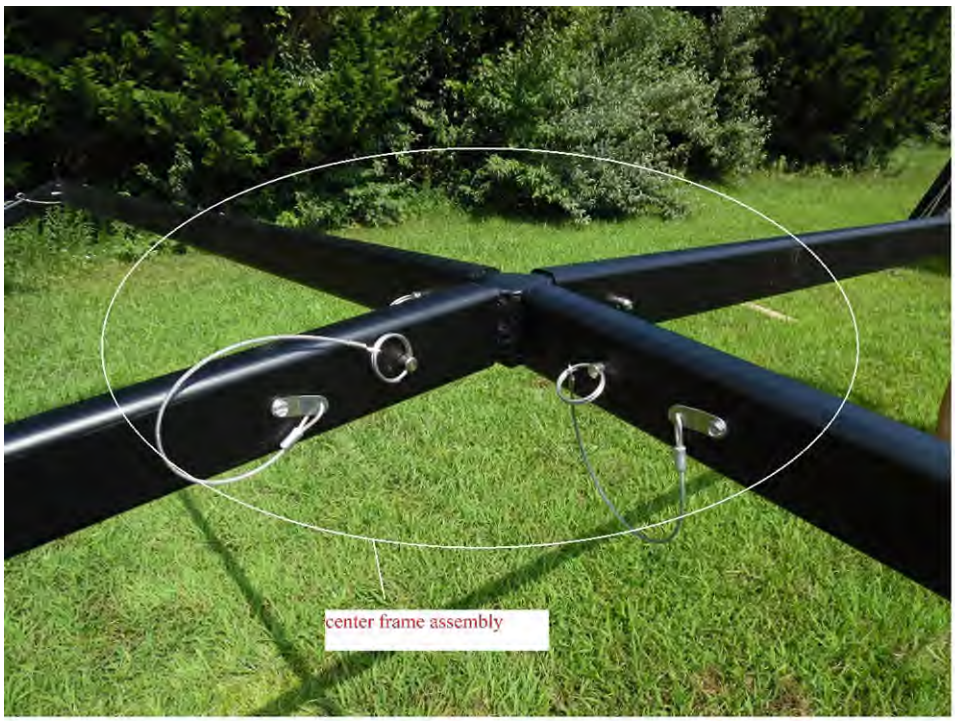


Photo F



Photo P

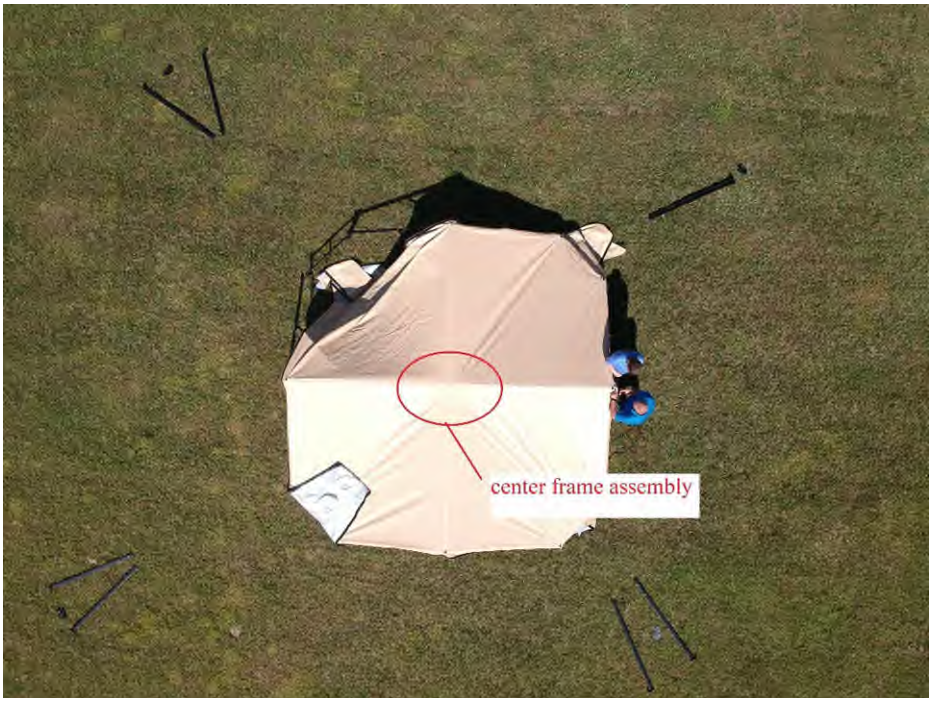
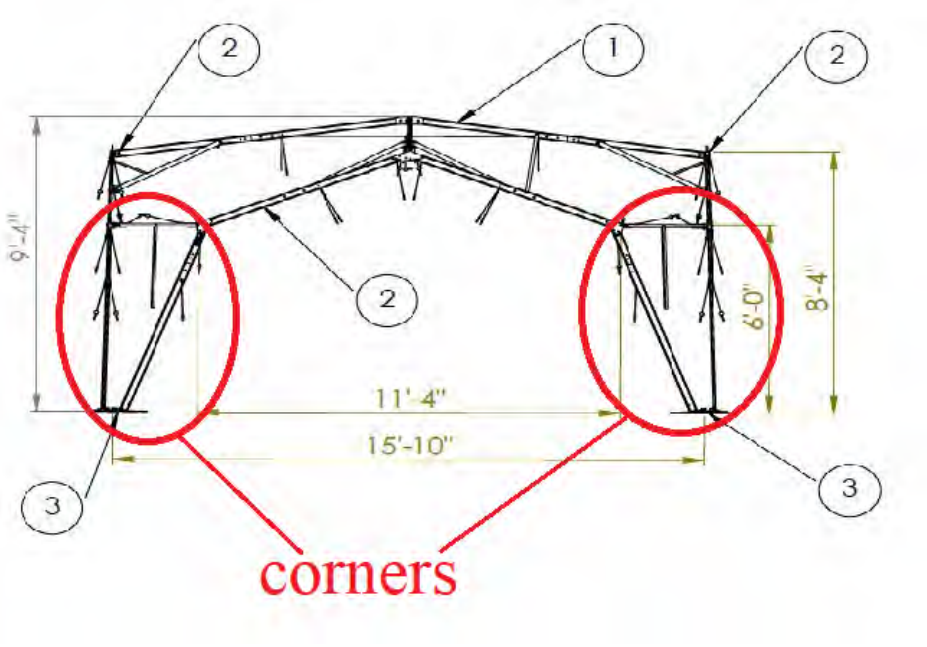
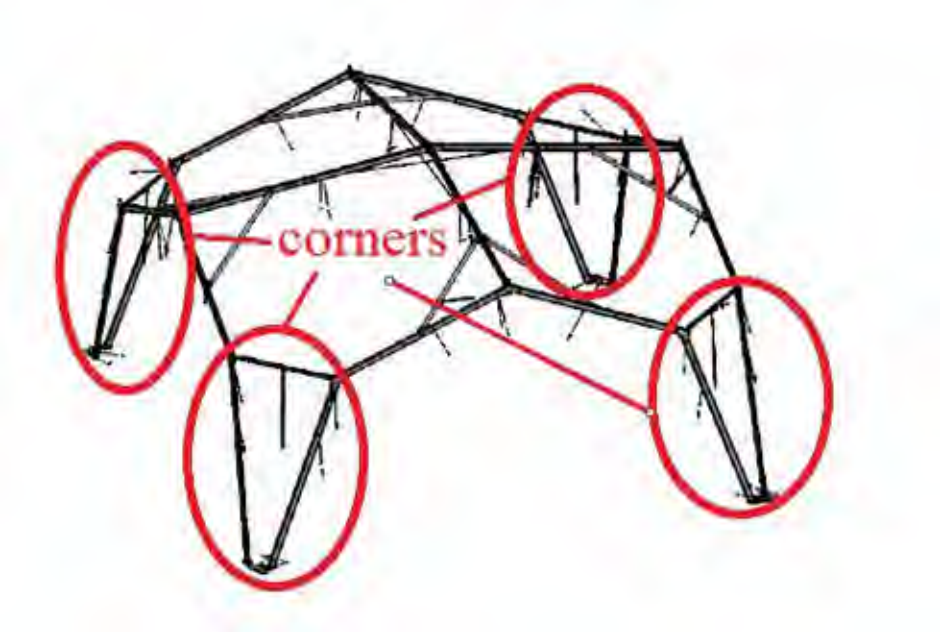
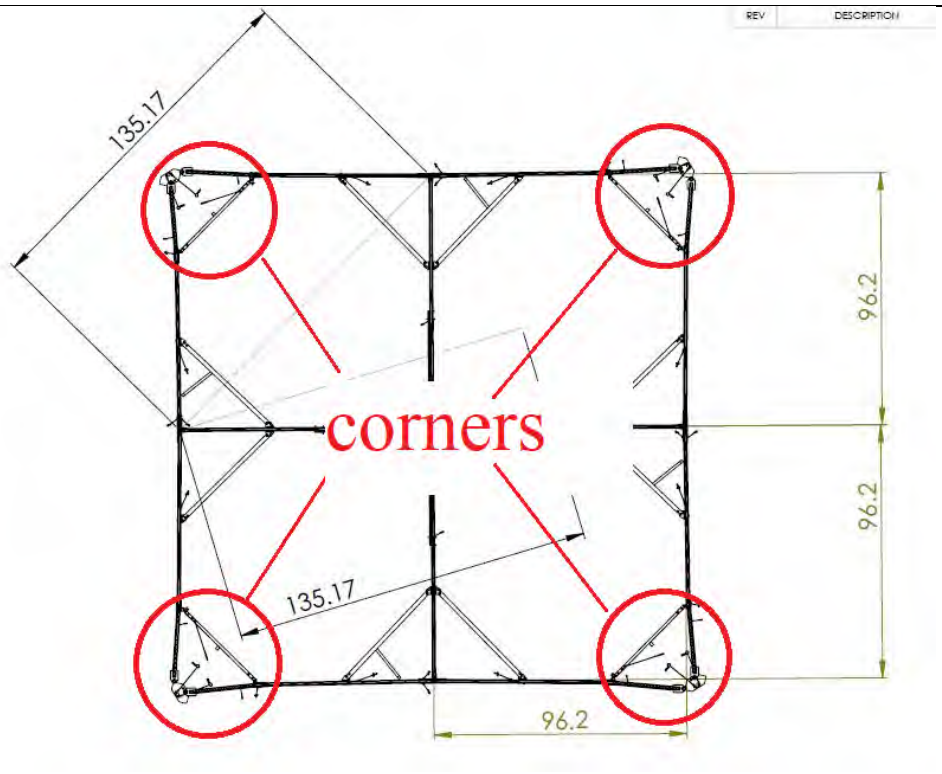


Photo V (Photos W and X are similar)

Center frame assemblies with extension poles to extend outwardly from a center point to each frame peak has been used in shelters for centuries.

a corner formed between the frame front end and each of the frame side, and the frame opposite side, and	Sheets 1 and 2 show a corner formed between the frame front end and each of the frame side, and the frame opposite side.  Sheet 1-A  Sheet 1-B



Sheet 2

Photos AA, B, BB, C, CC, DD, EE, M (inside of the corner), P, V, W, X, Y and Z show a corner formed between the frame front end and each of the frame side, and the frame opposite side.



Photo AA (Photos Y and Z are similar)



Photo B



Photo BB (Photos CC and DD are similar)



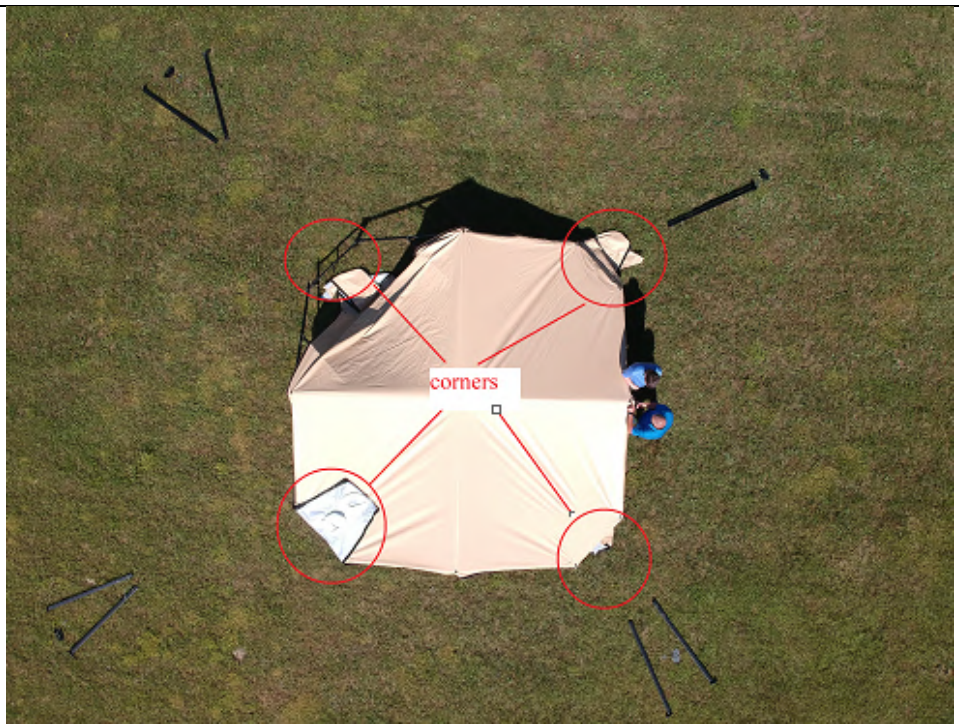
Photo C (Photo EE is similar)

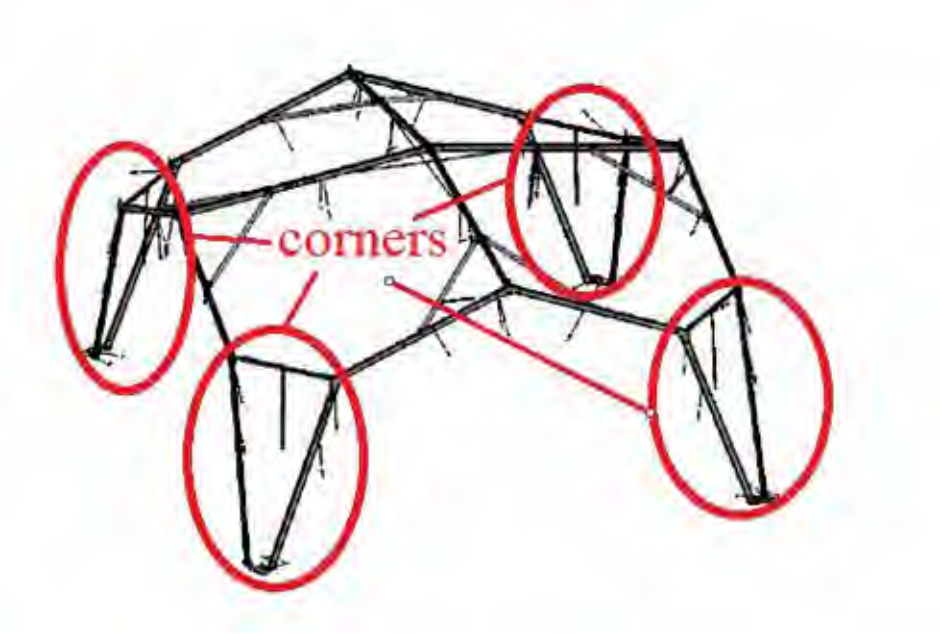


Photo M

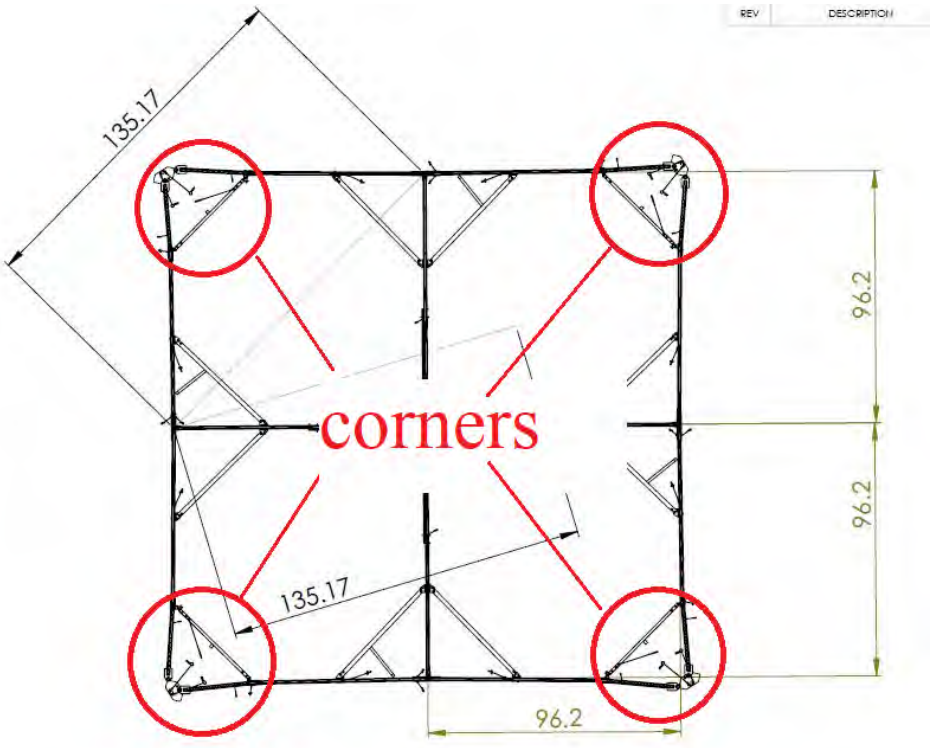


Photo P

	 Photo V (Photos W and X are similar) Corners between the frame front end and each of the frame side, and the frame opposite side have been used in many shelters over the centuries.
a corner formed between the frame back end and each of the frame side, and the frame opposite side,	Sheets 1 and 2 show a corner formed between the frame back end and each of the frame side, and the frame opposite side.



Sheet 1-B



Sheet 2

Photos BB, C, DD, EE, P, V, W and X show a corner formed between the frame back end and each of the frame side, and the frame opposite side. Some photos show multiple corners.



Photo BB (Photo DD is similar)



Photo C (Photo EE is similar)



Photo P

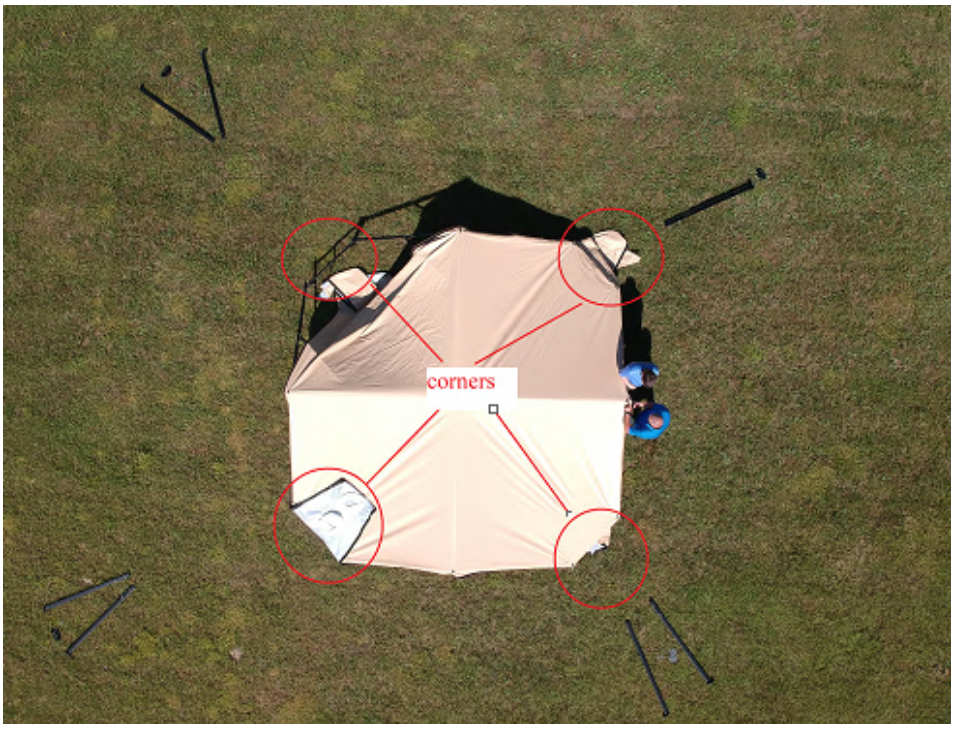
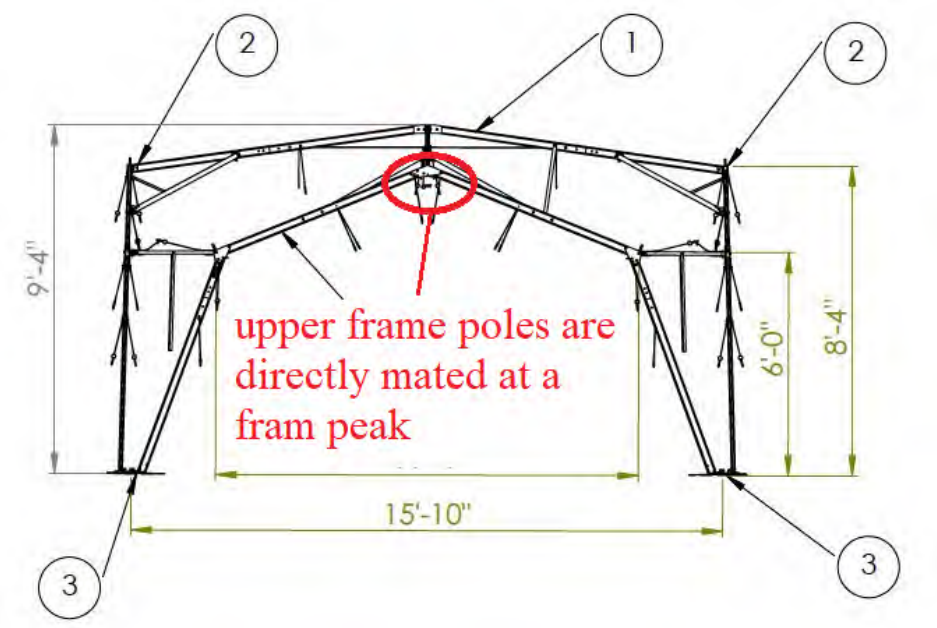
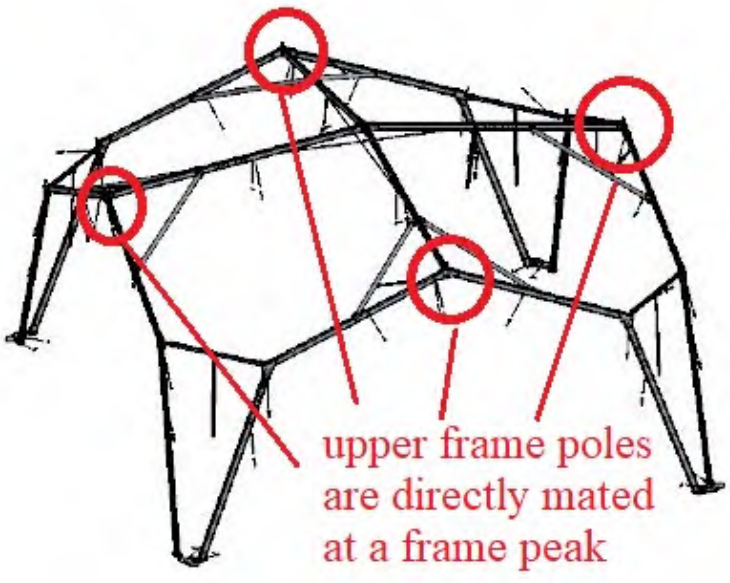
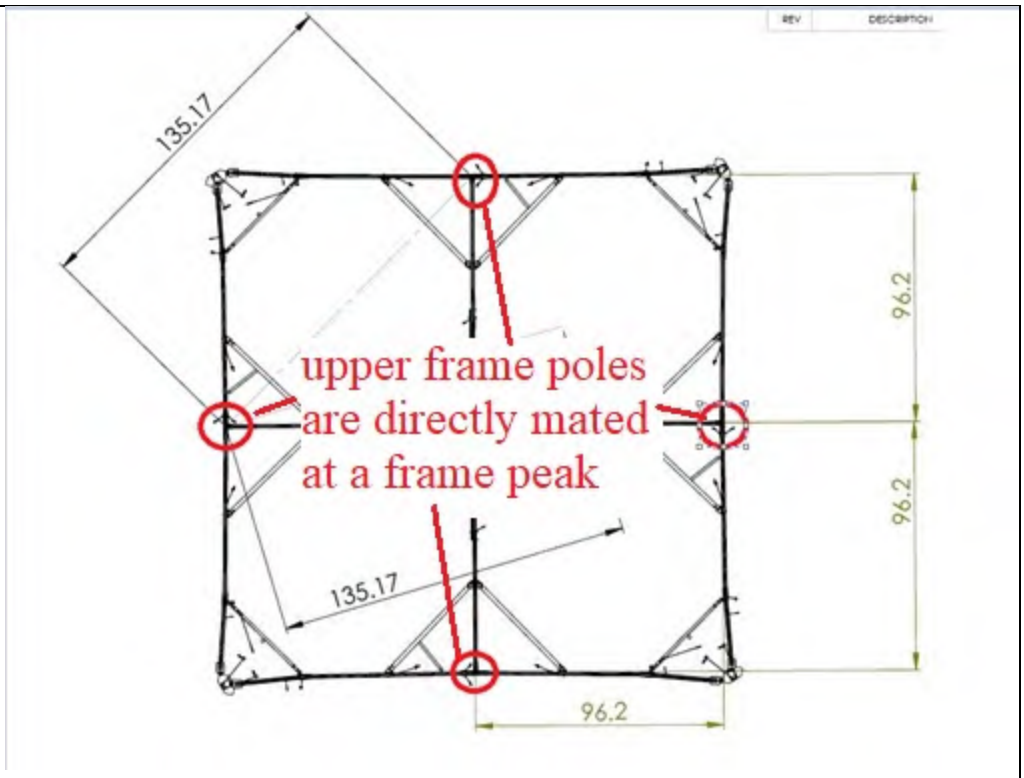


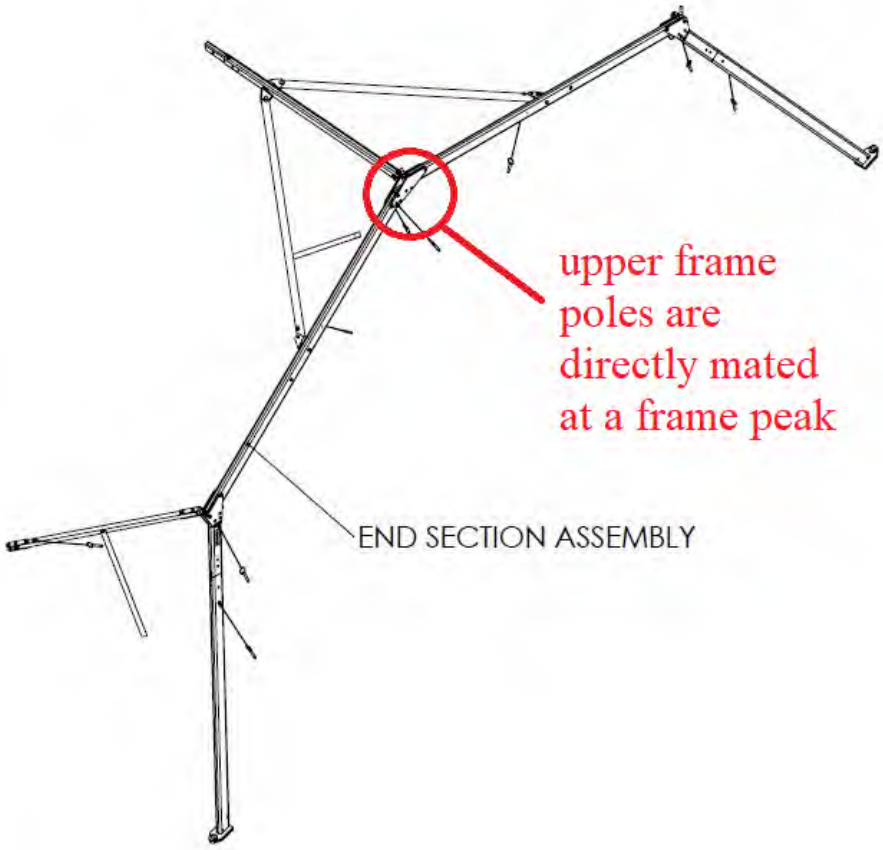
Photo V (Photos W and X are similar)

Corners between the frame back end and each of the frame side, and the frame opposite side have been used in many shelters over the centuries.

wherein the upper frame poles are directly mated at a frame peak.	Sheets 1, 2 and 3 show upper frame poles that are directly mated at a frame peak.  Sheet 1-A  Sheet 1-B


REV
DESCRIPTION
135.17
upper frame poles
are directly mated
at a frame peak
96.2
96.2
135.17
96.2

Sheet 2



Sheet 3

Photos A, AA, B, BB, C, CC, DD, E, EE, J, K, L, M, N, O, P, S, V, W, X, Y and Z show upper frame poles that are directly mated at a frame peak. Photos T and U show upper frame poles before mating at a frame peak.



Photo A (Photos B, J, K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)



Photo BB (Photo CC and DD are similar)



Photo C (Photos E and EE are similar)



Photo M

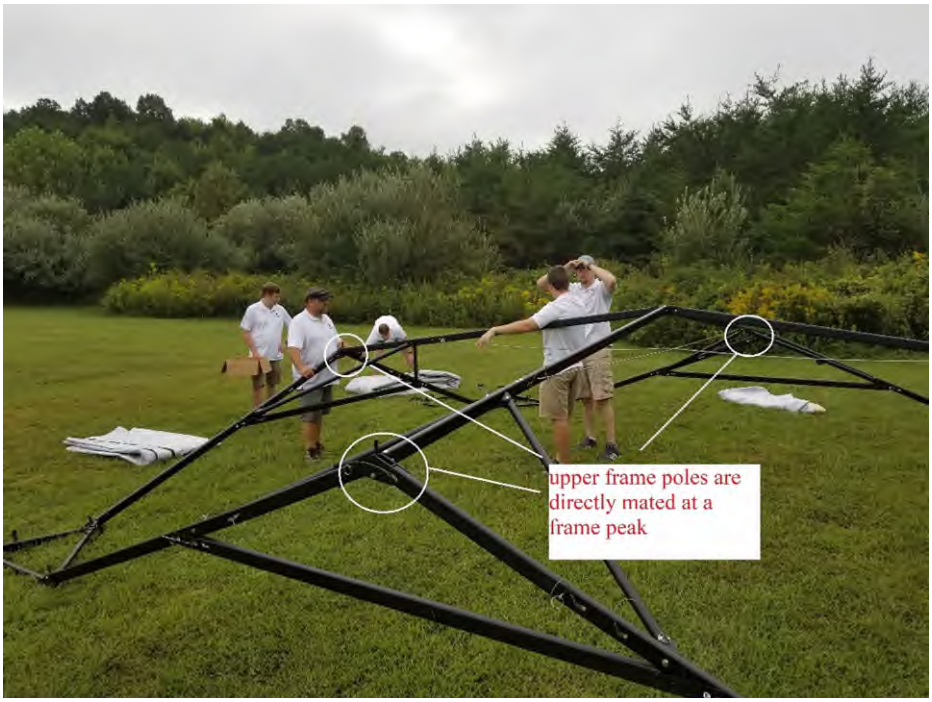


Photo P

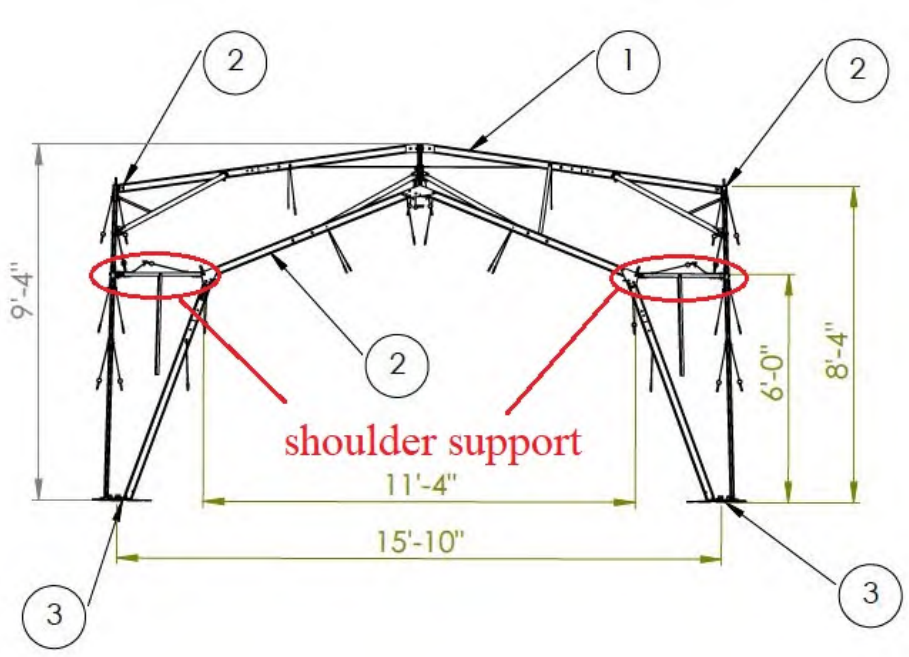


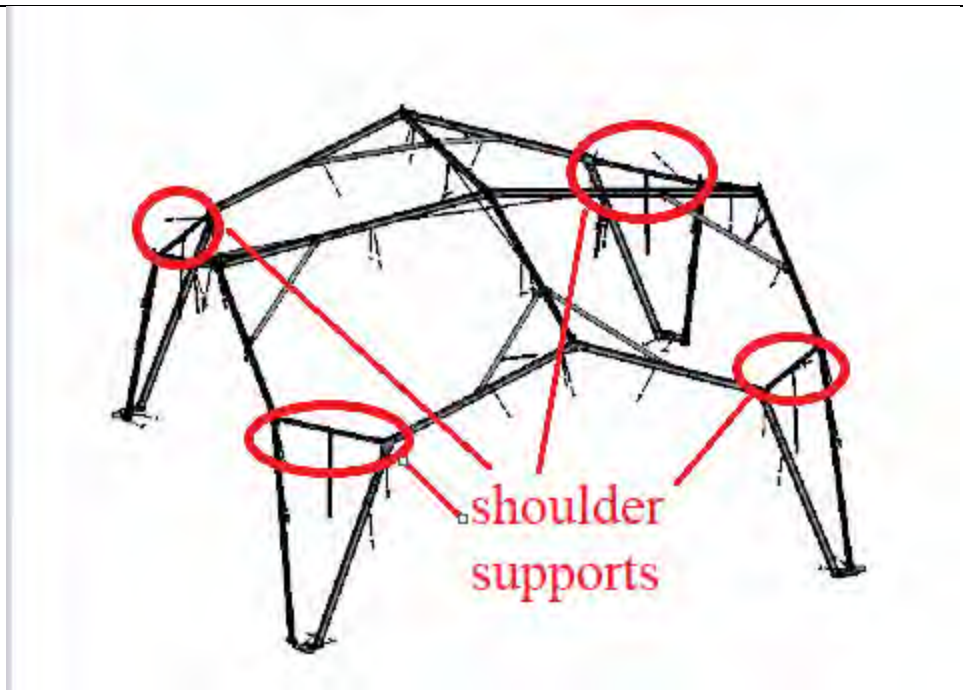
Photo S



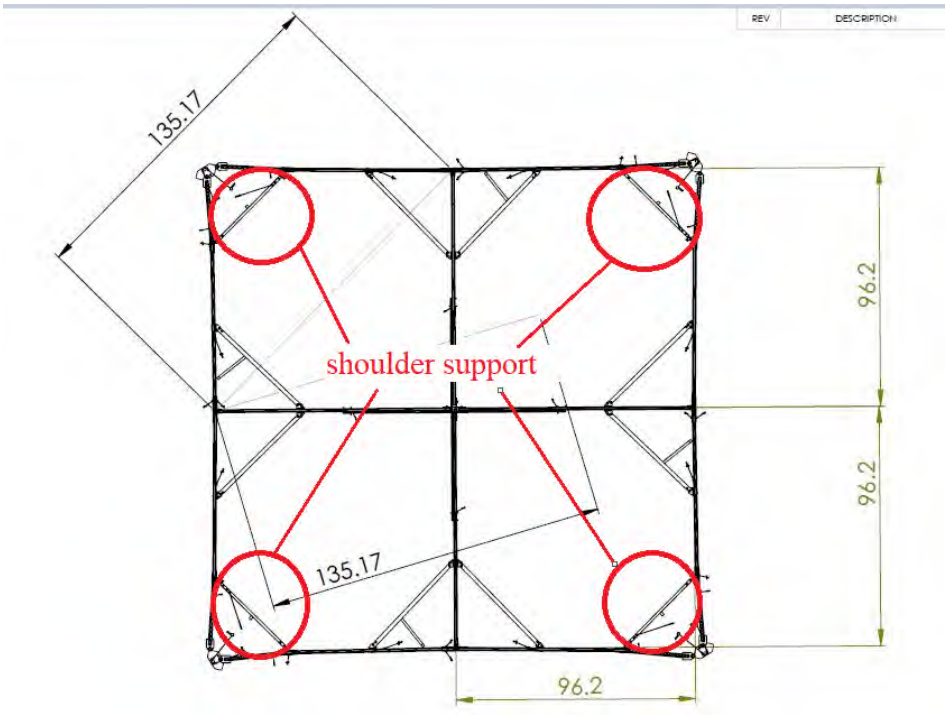
Photo V (Photos W and X are similar)

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

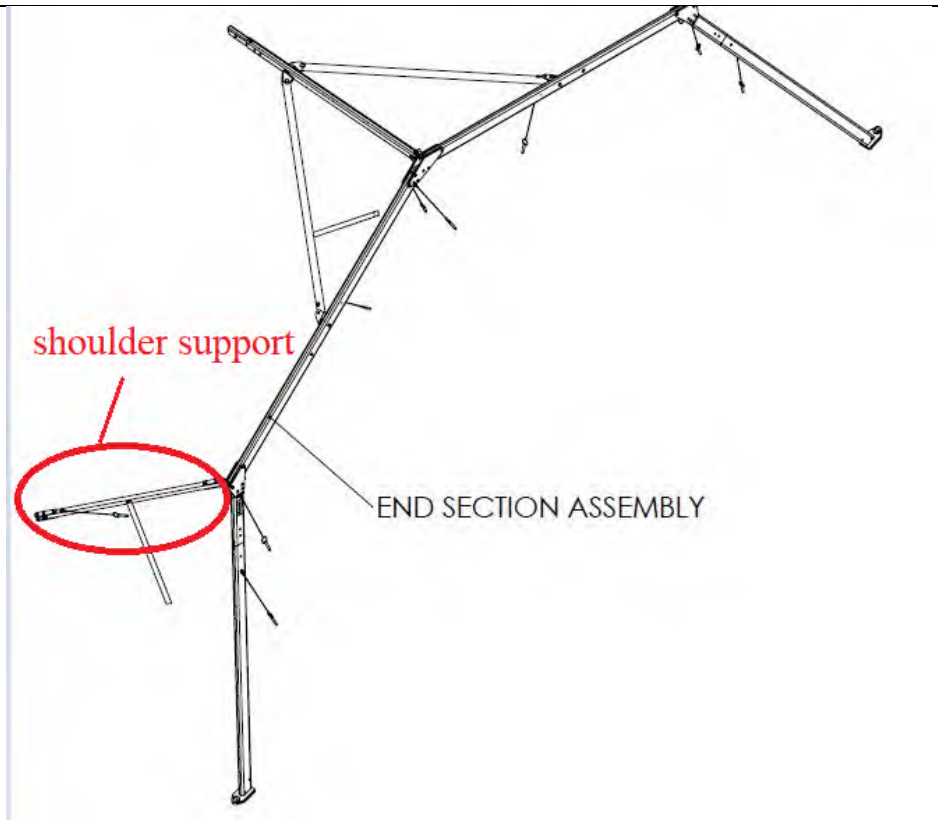
	A fabric cannot support itself to be hung in the air without an external support such as a frame pole. A fabric cannot stand without a support such as frame pole in a shelter. These frame poles are directly mated at a frame peak to form the volume for the shelter and to allow easier water removal and shedding. Upper frame poles that are directly mated at a frame peak have been used in shelters for centuries. Frame peaks allow slope changes of the shelter roofs for easier water drainage and shedding.
2. The rapid-deployment shelter of claim 1 including a shoulder support extending between adjacent shoulders of each corner.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1, 2 and 3 have a shoulder support extending between adjacent shoulders of each corner.  Sheet 1-A



Sheet 1-B



Sheet 2



Sheet 3-A

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M (from inside), N, O, P, V, W, X, Y and Z show at least one shoulder support extending between adjacent shoulders of each corner.



Photo A (Photos J, K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)



Photo B



Photo BB (Photos CC and DD are similar)



Photo C (Photos D and EE are similar)



Photo M



Photo P

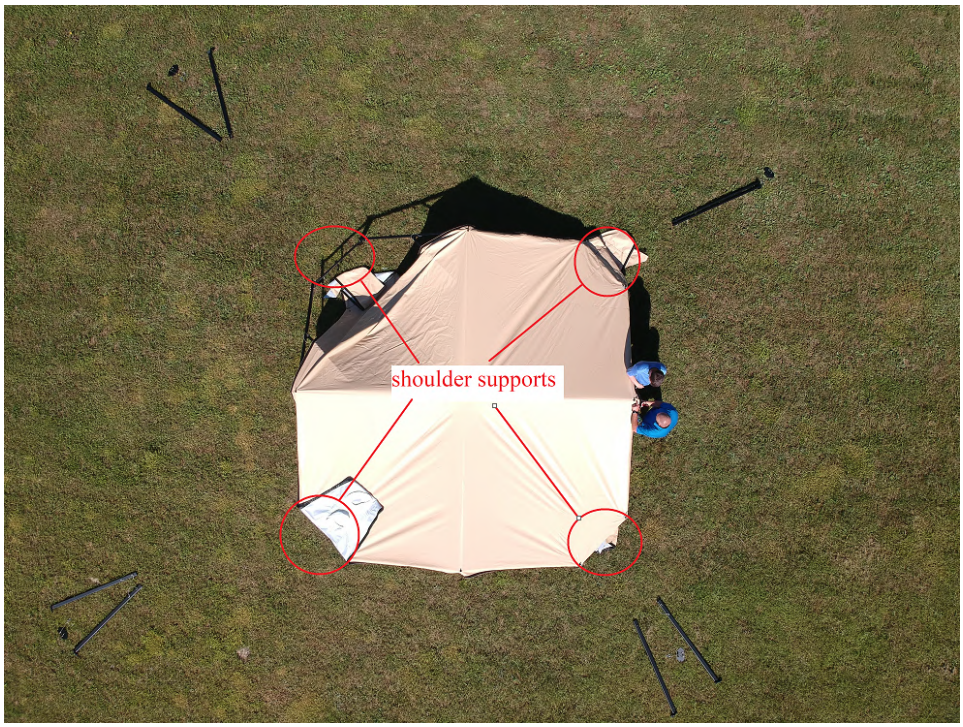
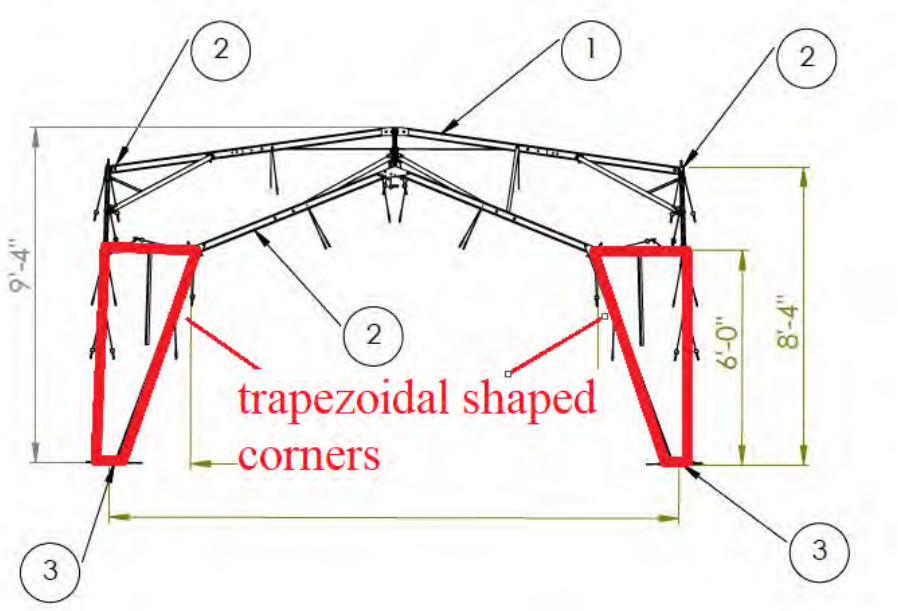
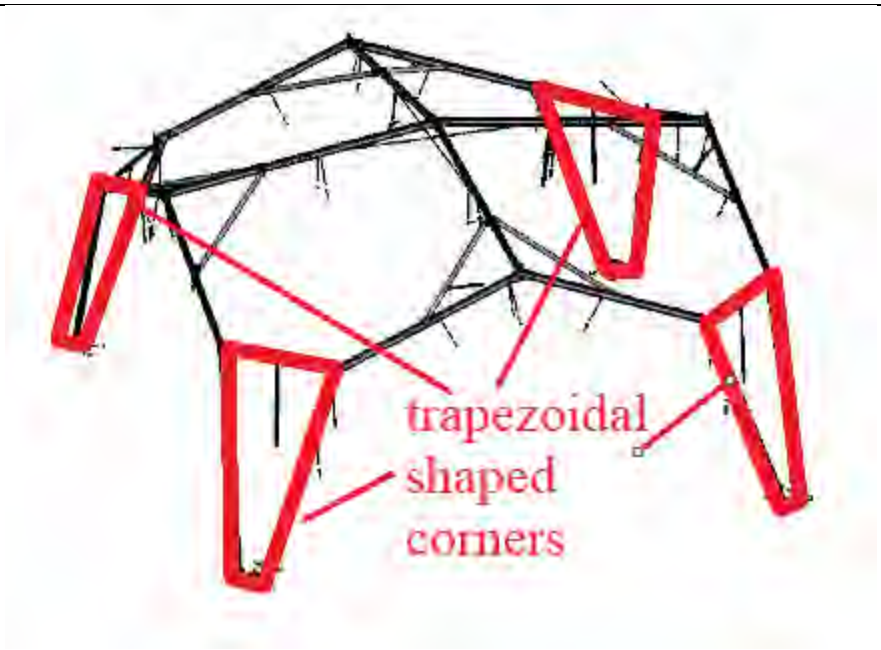


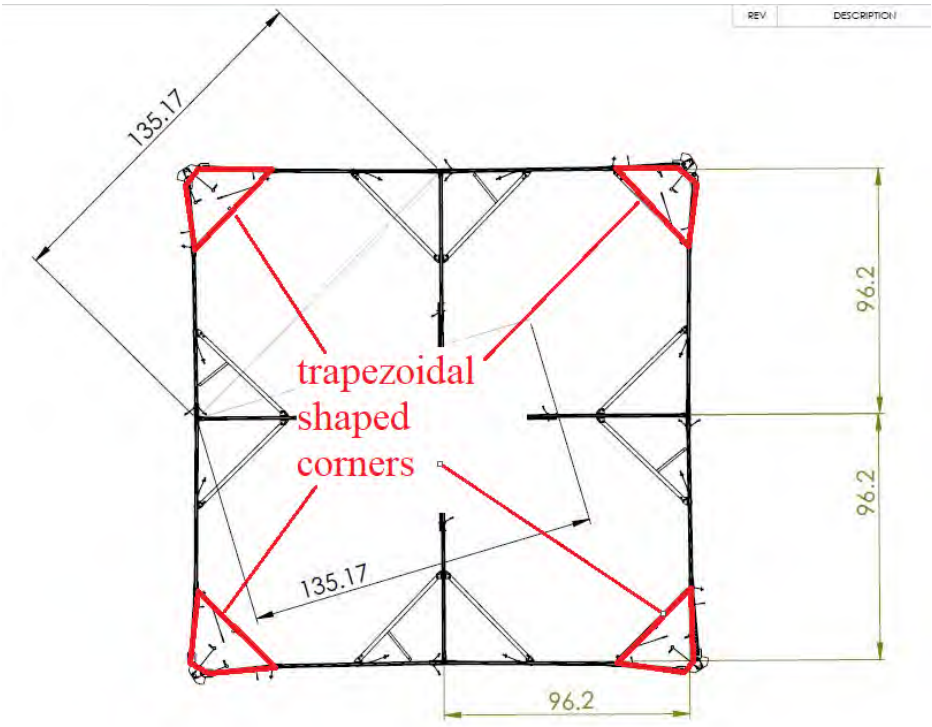
Photo V (Photos W and X are similar)

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

	A fabric cannot support itself straight between two adjacent shoulders of each corner without an external shoulder support. That is why shoulder supports have been used in shelters for decades.
3. The rapid-deployment shelter of claim 2 wherein each corner is a trapezoidal shaped corner.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. “In geometry, a trapezoid in North American English, or trapezium in British English, is a quadrilateral that has at least one pair of parallel sides. The parallel sides are called the bases of the trapezoid.” (https://en.wikipedia.org/wiki/Trapezoid , accessed 5.12.2024). Sheets 1 and 2 show that each corner is a trapezoidal shaped corner.  Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M, N, O, Y and Z exhibit trapezoidal shaped corners.



Photo A (Photos J, K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)



Photo B



Photo BB (Photos CC and DD are similar)



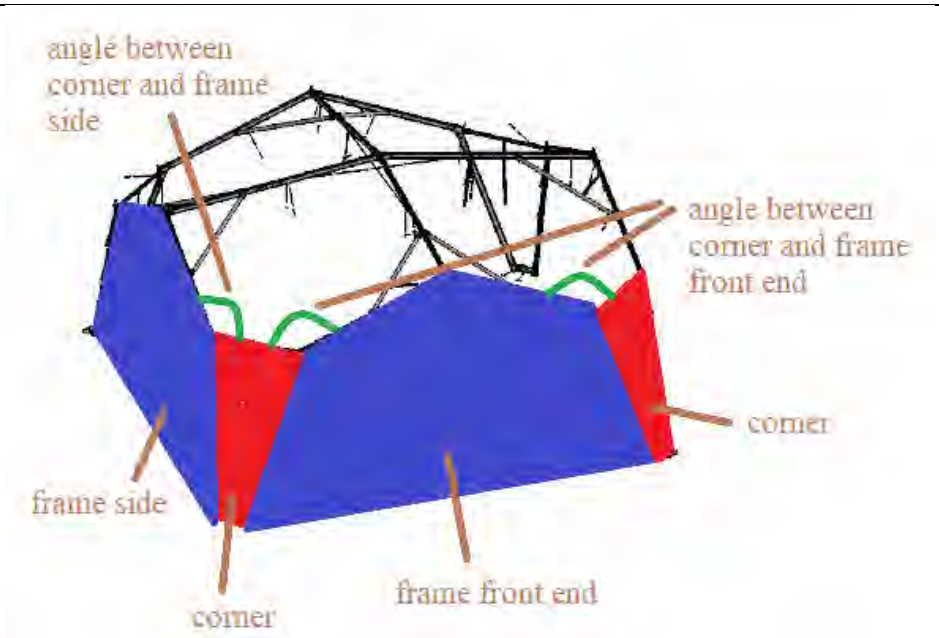
Photo C (Photos D and EE are similar)



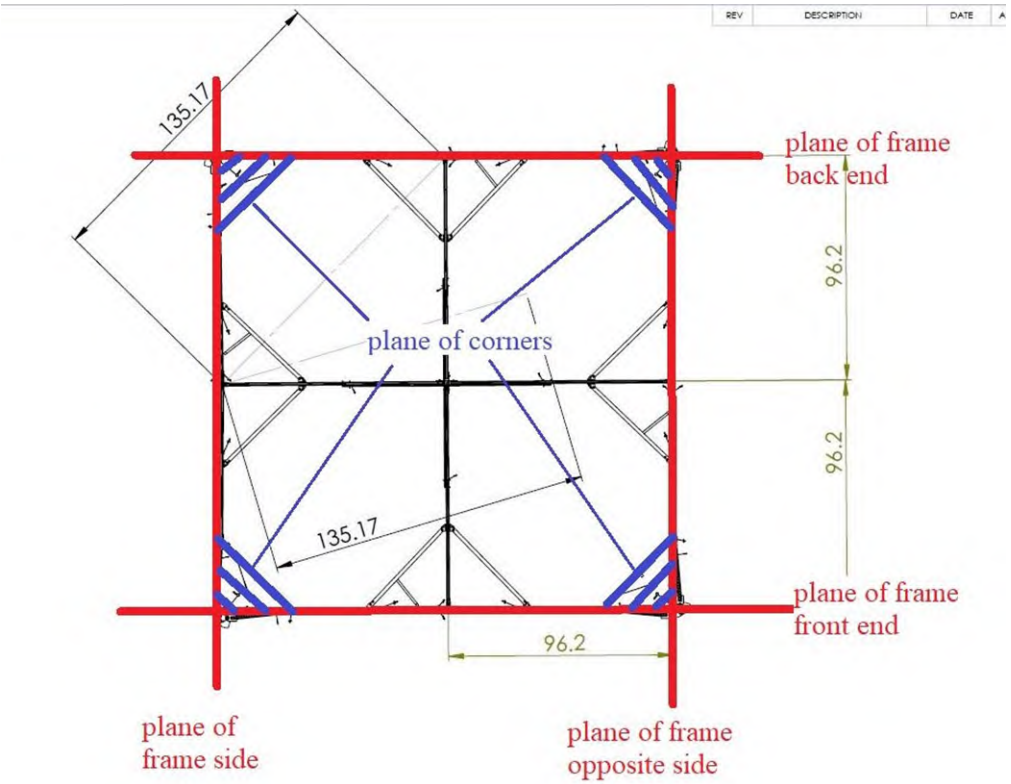
Photo M

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

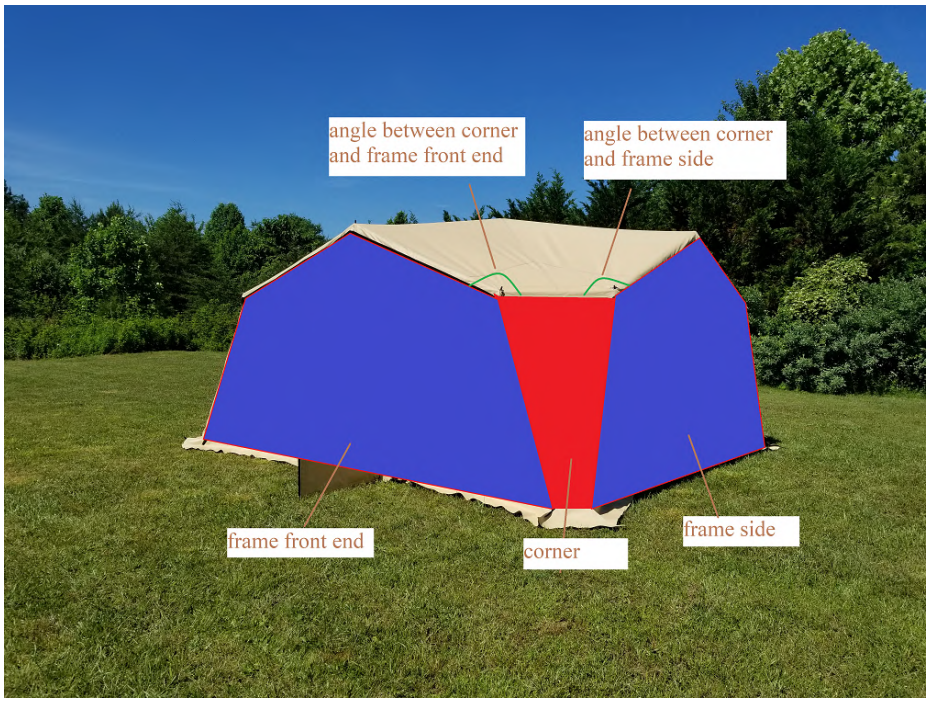
	A fabric cannot support itself to be hung in the air without an external support such as a frame. Trapezoidal shaped corners have been used in shelters for centuries.
4. The rapid-deployment shelter of claim 2 wherein each corner is set on a different plane than each frame front end, frame back end, frame side, and frame opposite side.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. A plane is a 2-dimensional object such as X-Y plane with no thickness in the Z direction. For two planar objects to be on the same plane, they must be parallel to each other and the distance between them should be zero. The surface of each side of a shelter can be considered a planar surface including the surface of corners. The frame front end, frame back end, frame side and frame opposite side are at 90 degrees to each other, i.e., perpendicular to each other. Each corner is at an angle to the frame front end, frame back end, frame side and frame opposite side. Sheet 1and 2 show that each corner planar surface is set on a different plane than each planar surface of the frame front end, frame back end, frame side, and frame opposite side.



Sheet 1-B



Sheet 2 (shows the planes from top)

	Photos A, AA, B, BB, C, CC, DD, EE, J, K, L, M, N, O, V, W, X, Y and Z show that each corner is set on a different plane than each frame front end, frame back end, frame side, and frame opposite side.  Photo A (Photos J, K, L, N and O are similar)

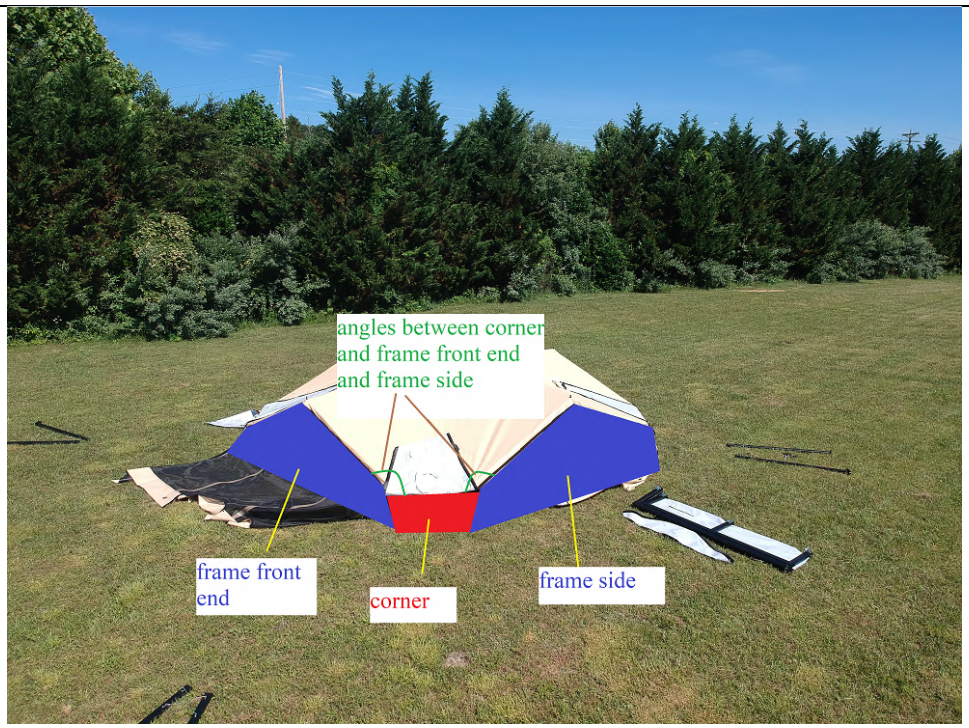


Photo AA (Photos B, BB, CC, DD, Y and Z are similar)

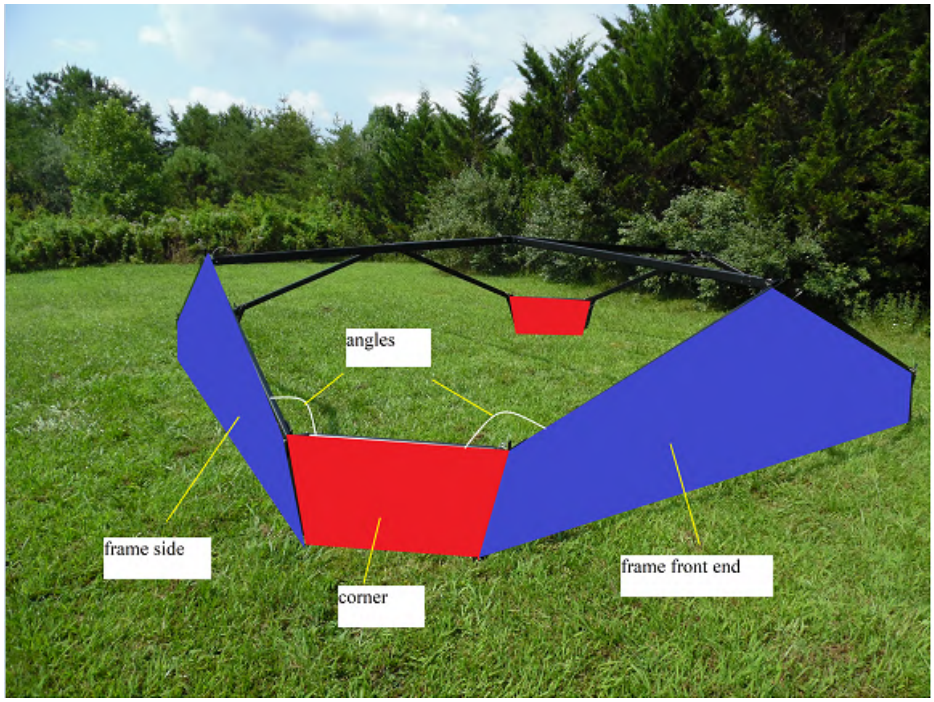


Photo C (Photo EE is similar)

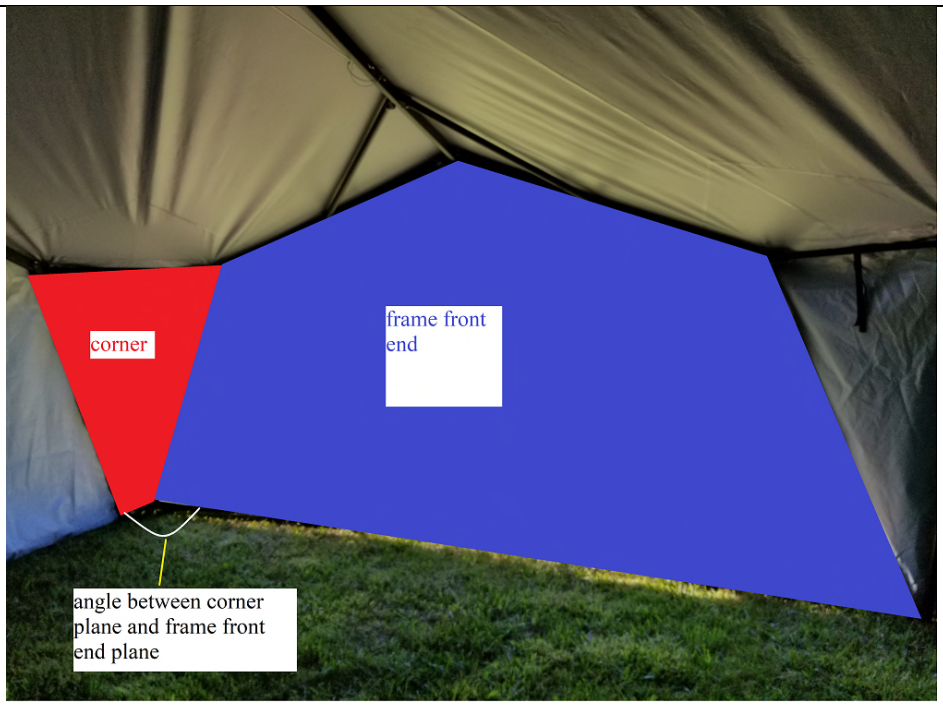


Photo M

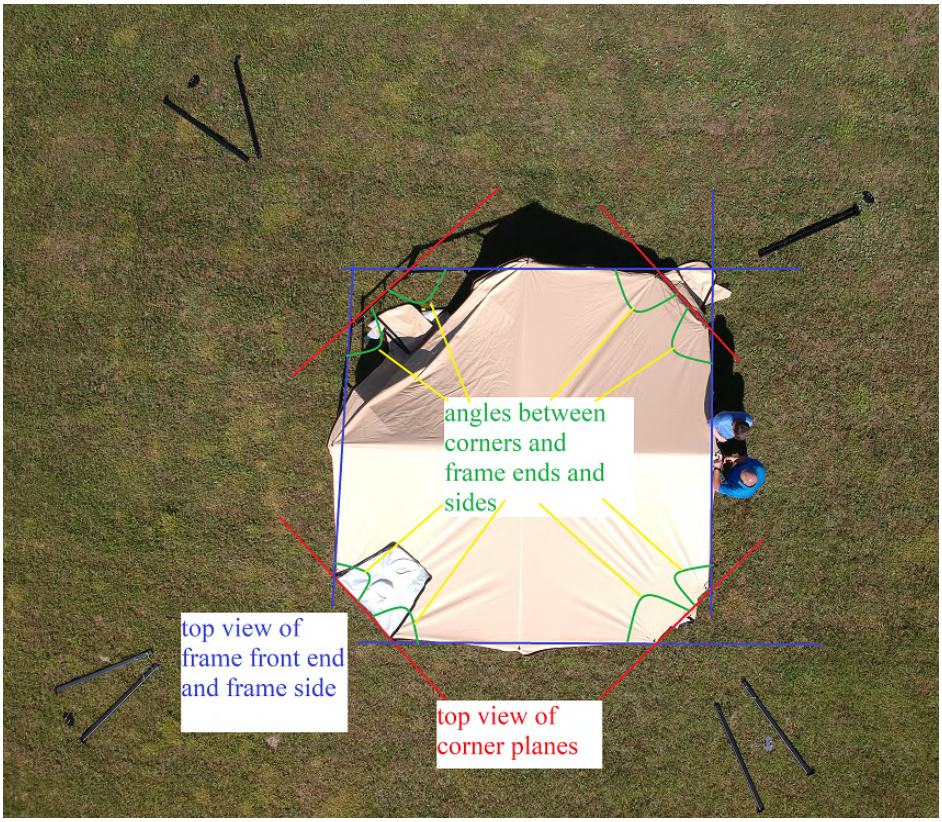
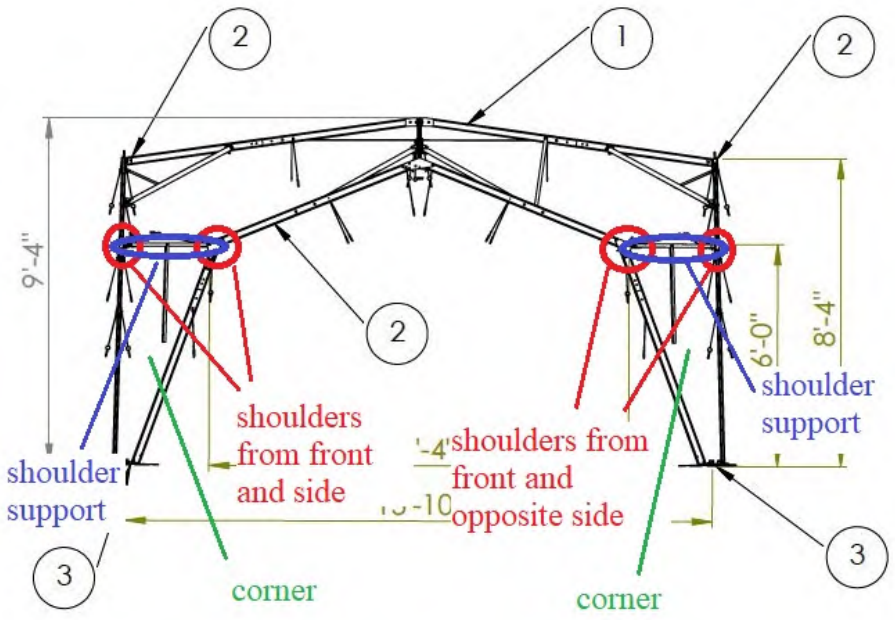
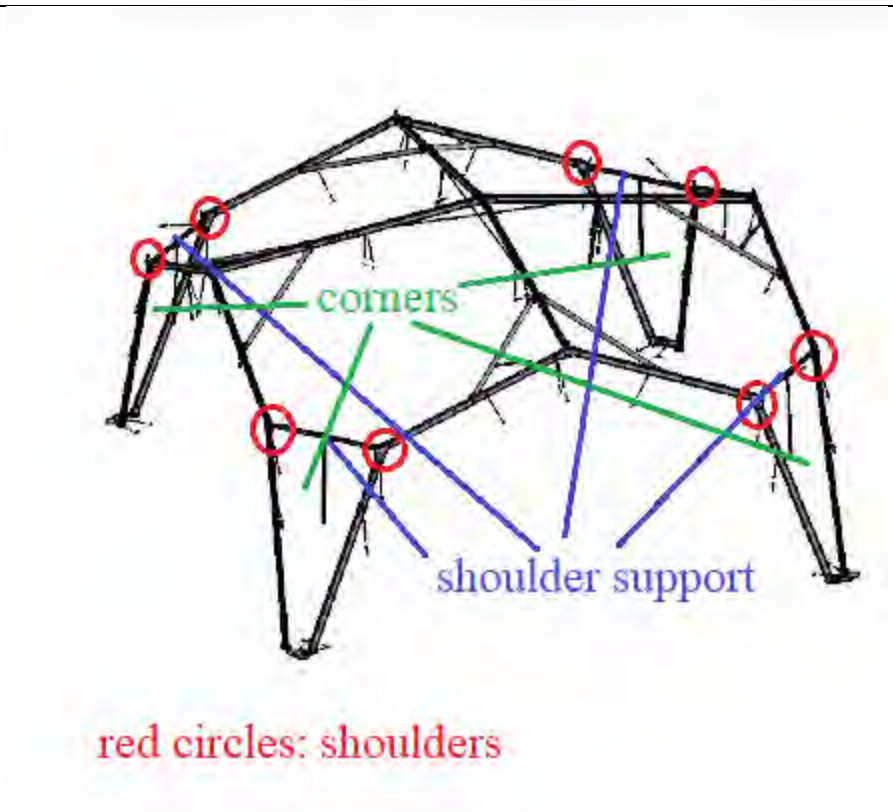


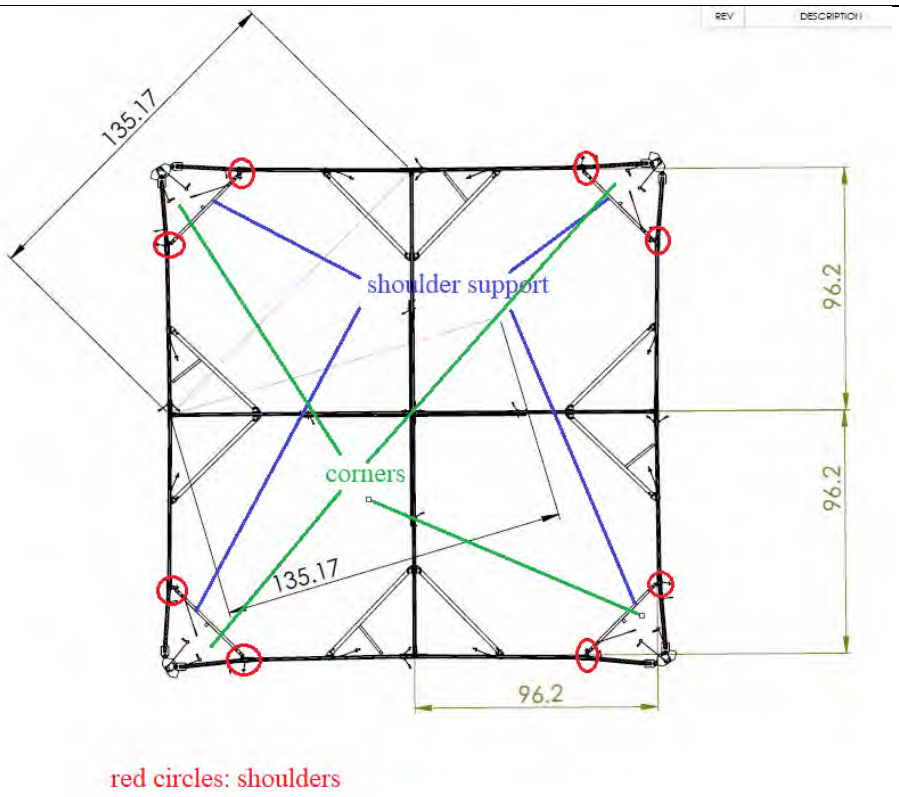
Photo V (Photos W and X are similar)

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

	A fabric cannot support itself to be hung in the air without an external support such as a frame or corner.
5. The rapid-deployment shelter of claim 2 wherein each corner includes a shoulder from either the front end or the back end and a shoulder from either the side or the opposite side with a shoulder support extending between.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1 and 2 show that each corner includes a shoulder from either the front end or the back end and a shoulder from either the side or the opposite side with a shoulder support extending between.  Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M, N, O, P, V, W, X, Y and Z show that each corner includes a shoulder from either the front end or the back end and a shoulder from either the side or the opposite side with a shoulder support extending between.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)

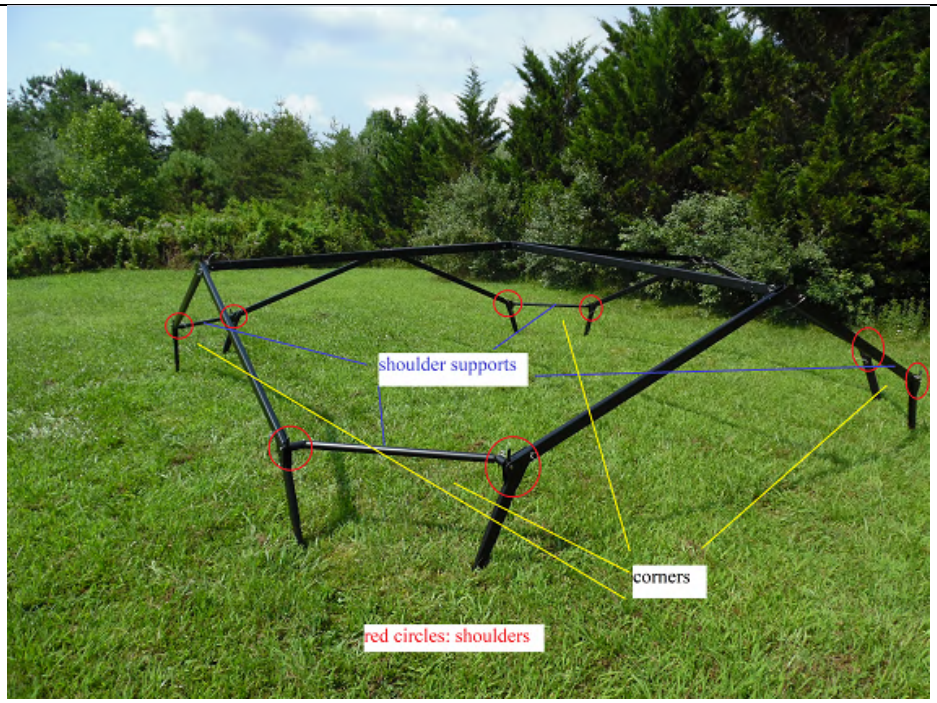
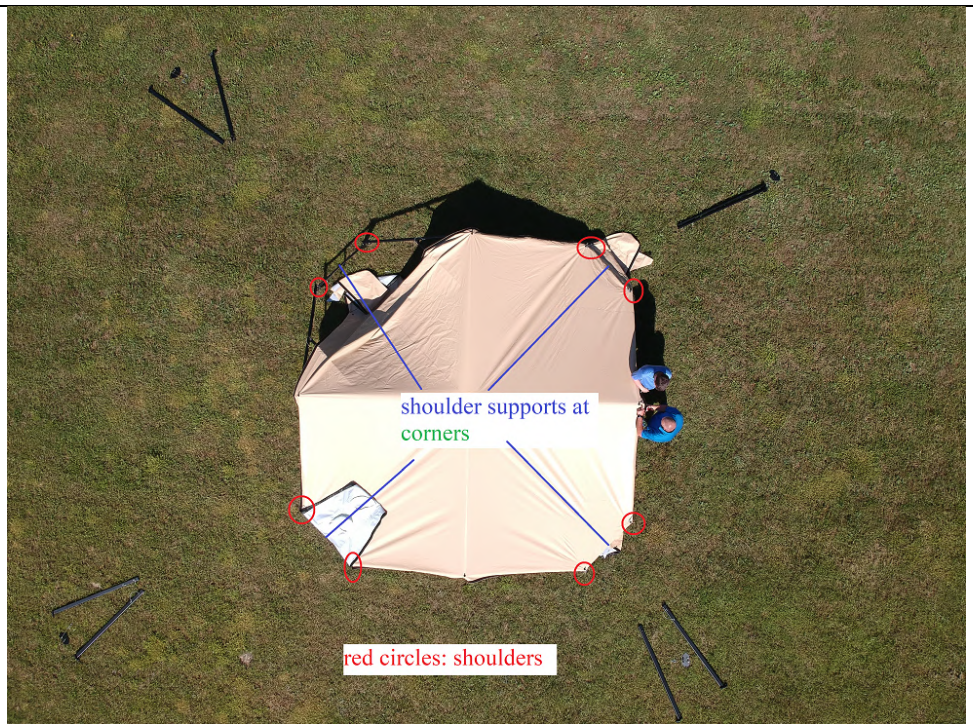
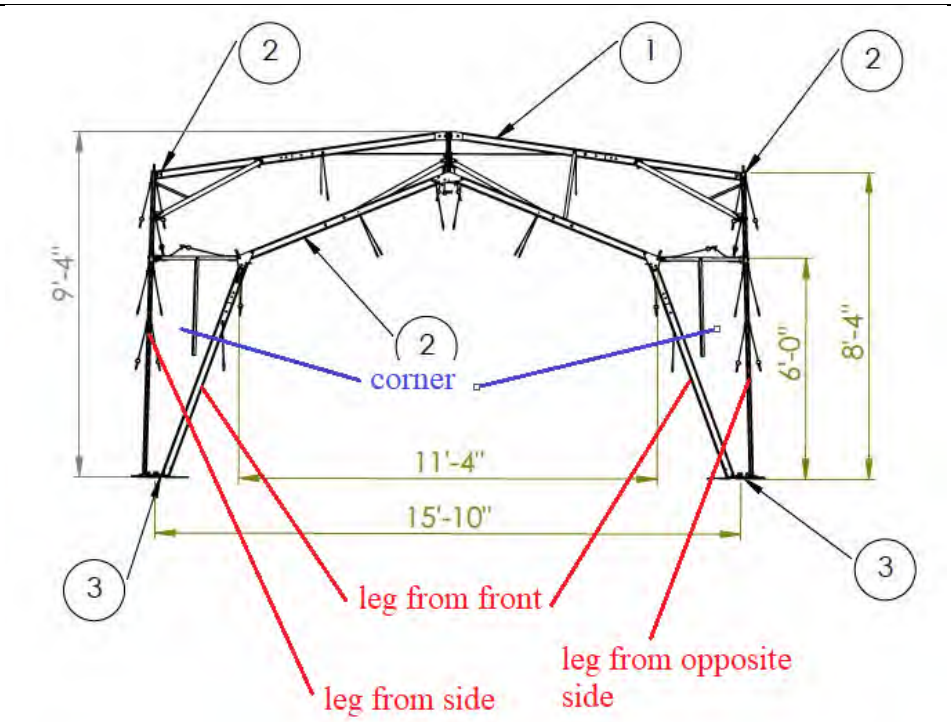
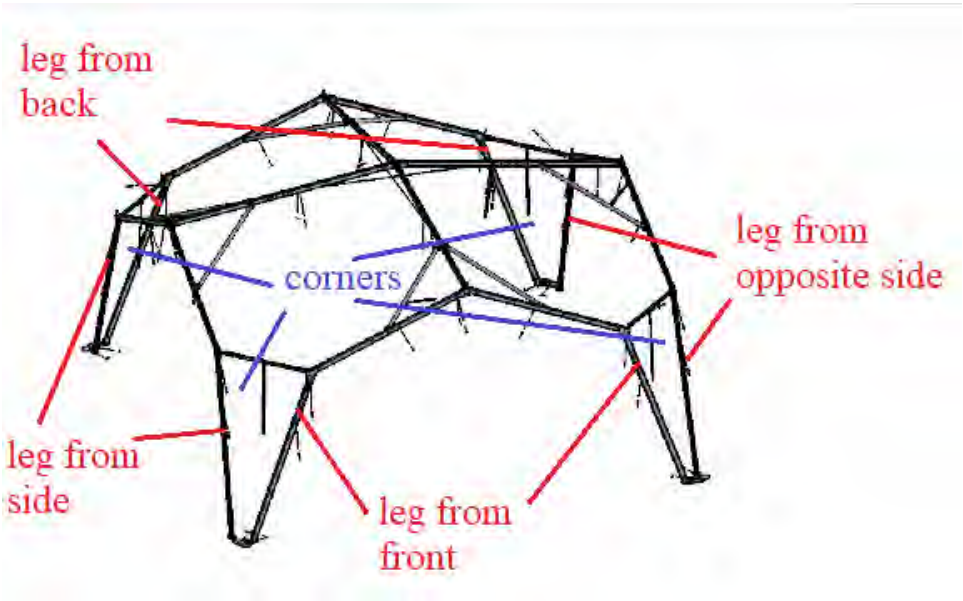


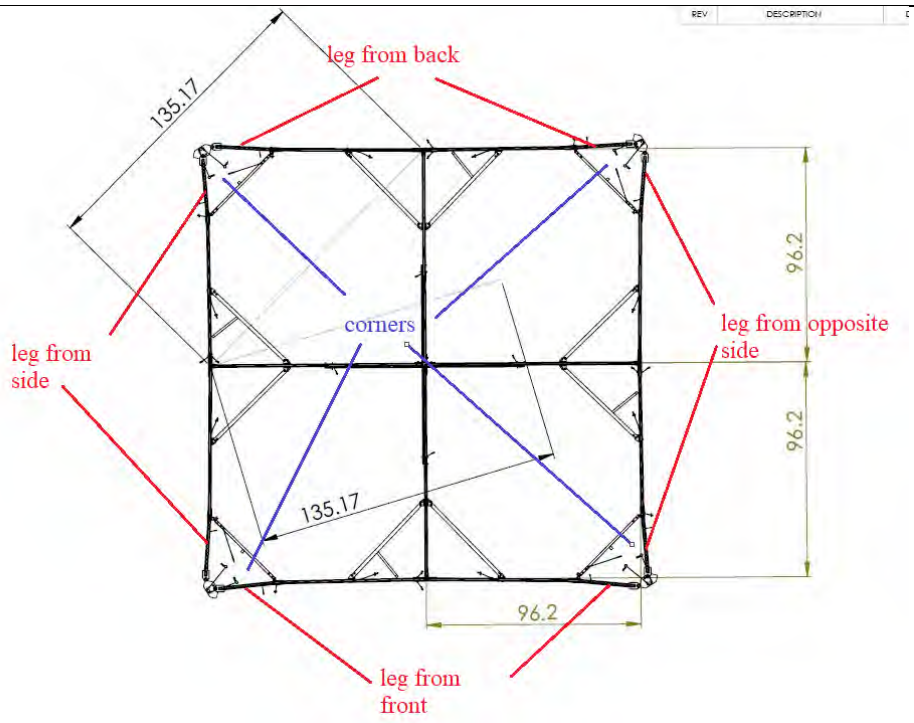
Photo C (Photos D, EE and P are similar)



Photo M

	 Photo V (Photos W and X are similar) Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. A fabric cannot support itself to be hung in the air without an external support such as a frame. This design feature has been used in shelters for centuries.
6. The rapid-deployment shelter of claim 5 wherein each corner includes a leg from either the front end or the back end and a leg	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1 and 2 show that each corner includes a leg from either the front end or the back end and a leg from either the side or the opposite side.

from either the side or the opposite side.	 Sheet 1-A  Sheet 1-B



Sheet 2

Photos A, AA (legs not fully assembled yet), B, BB, C, CC, D, DD, EE, J, K, L, M (inside view), N, O, P, Y and Z show that each corner includes a leg from either the front end or the back end and a leg from either the side or the opposite side. Photos V, W and X show that each corner includes a leg from either the front end or the back end and a leg from either the side or the opposite side, albeit the legs are not assembled yet.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)



Photo C (Photos D and EE are similar)



Photo M



Photo P

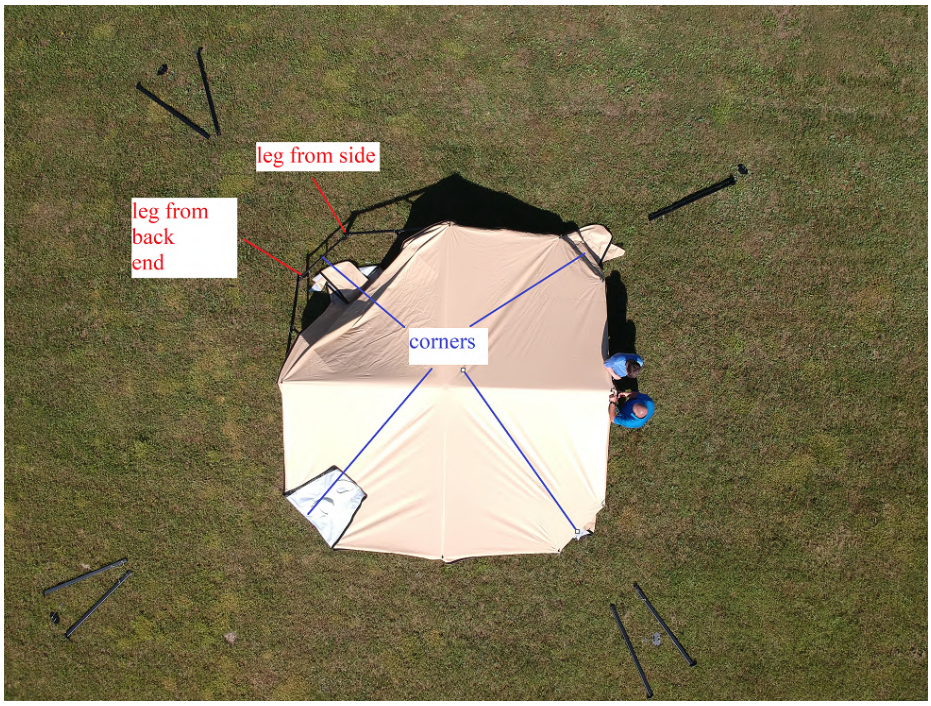
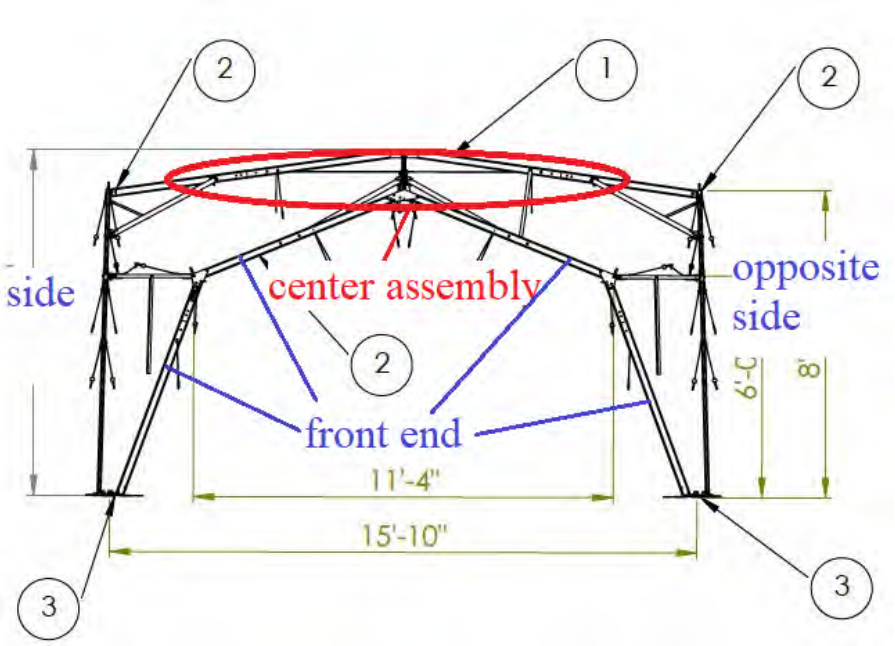
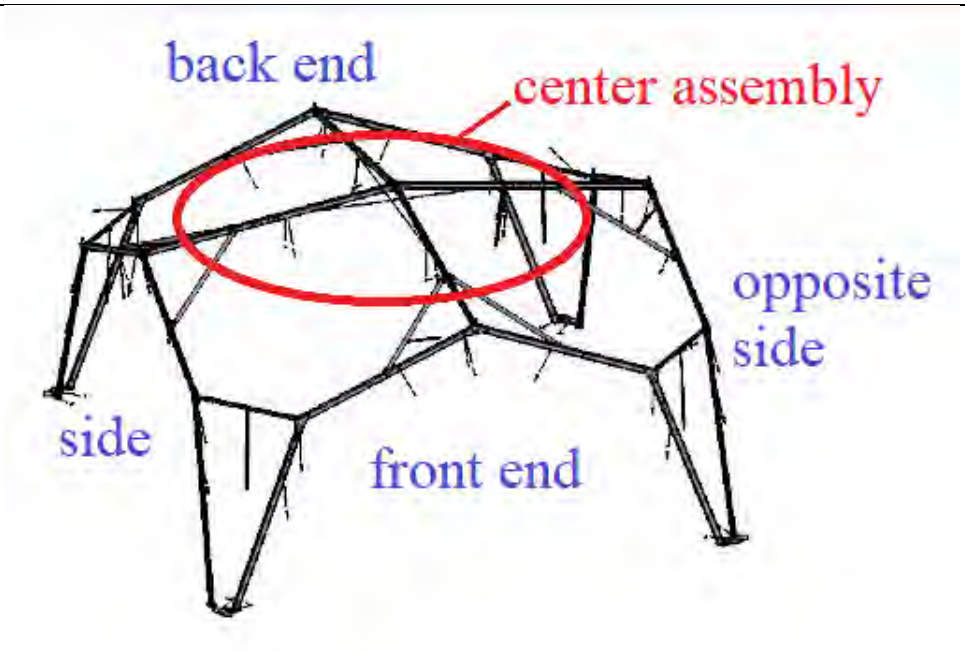


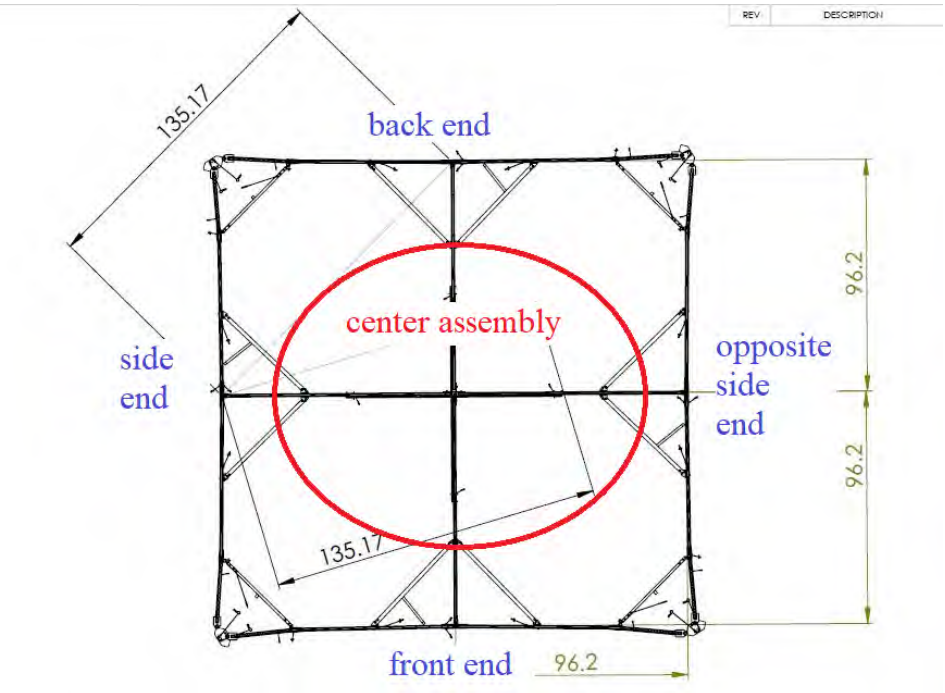
Photo V (Photos W and X are similar)

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

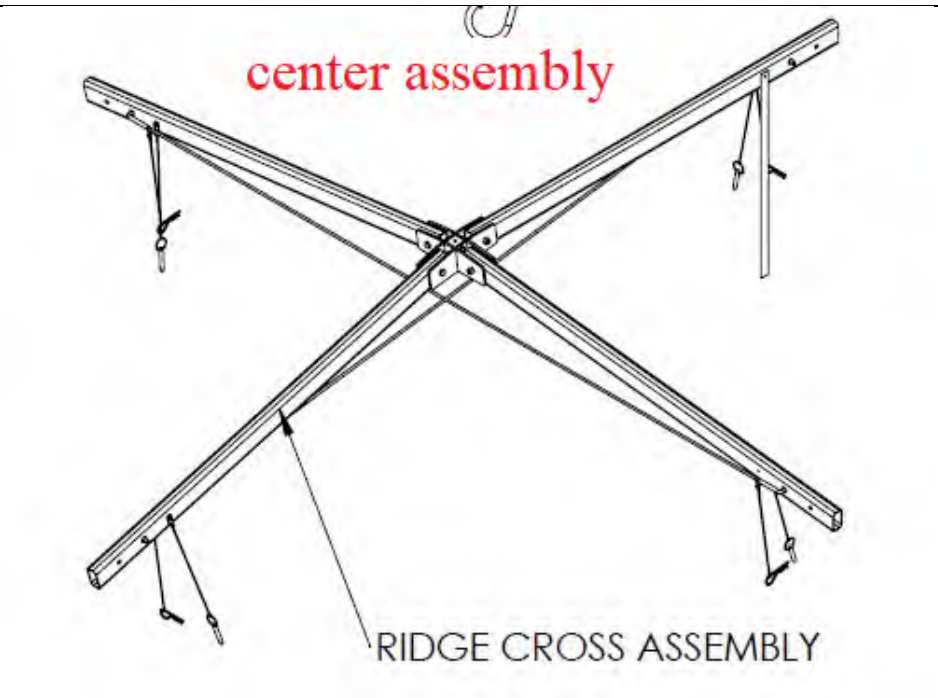
	A fabric cannot support itself to be hung in the air without an external support such as a frame or corner. This design feature has been used in shelters for centuries.
7. The rapid-deployment shelter of claim 6 wherein the center assembly interconnects the front end, back end, side and opposite side of the shelter frame.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1, 2 and 3 show that the center assembly interconnects the front end, back end, side and opposite side of the shelter frame.  Sheet 1-A



Sheet 1-B



Sheet 2



Sheet 3-C

Photos A, AA, B, BB, C, CC, DD, EE, F, J, K, L, N, O, P, V, W, X, Y and Z show that the center assembly interconnects the front end, back end, side and opposite side of the shelter frame.



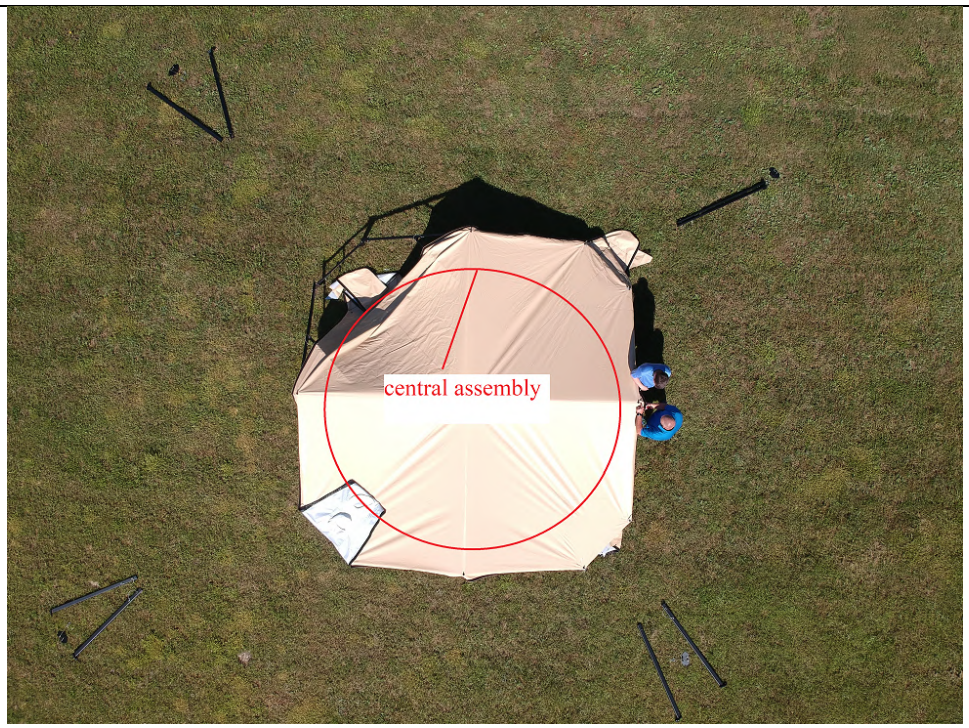
Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

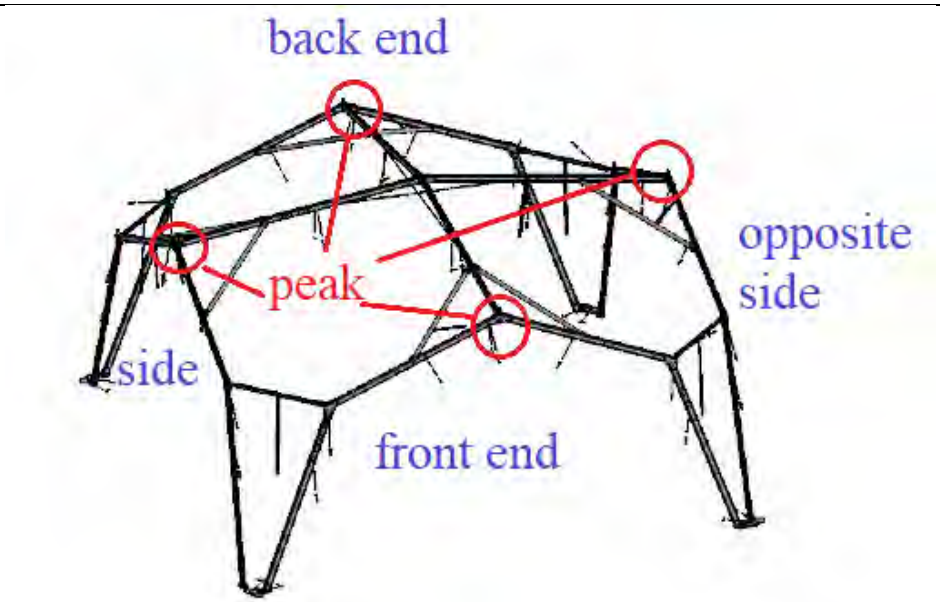


Photo AA (Photos Y and Z are similar)



Photo C (Photos EE, F and P are similar)

	 Photo V (Photos W and X are similar) Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. A fabric cannot support itself to be hung in the air without an external support such as a frame pole. A fabric cannot stand without a support such as frame pole in a shelter.
8. The rapid-deployment shelter of claim 7 having a peak formed along each of the front end, back end, side and opposite side.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheet 1 shows that a peak is formed along each of the front end, back end, side and opposite side.



Sheet 1-B

Photos A, AA, B, BB, C, CC, DD, EE, J, K, L, N, O, P, V, W, X, Y and Z show that a peak is formed along each of the front end, back end, side and opposite side.



Photo A (Photos B, CC, J, K, L, N and O are similar)

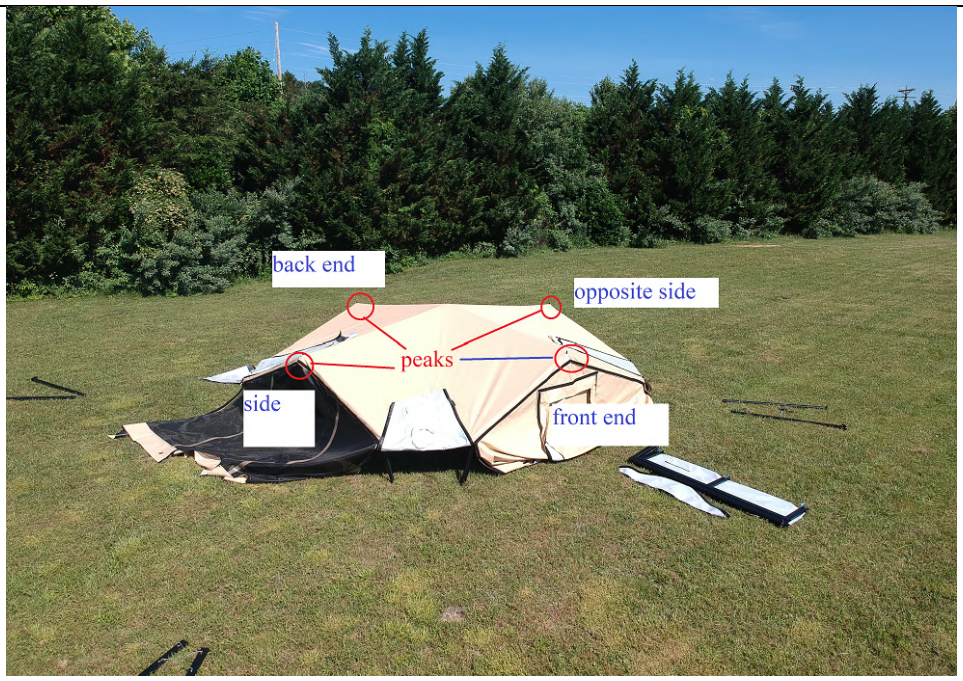


Photo AA (Photos BB, Y and Z are similar)

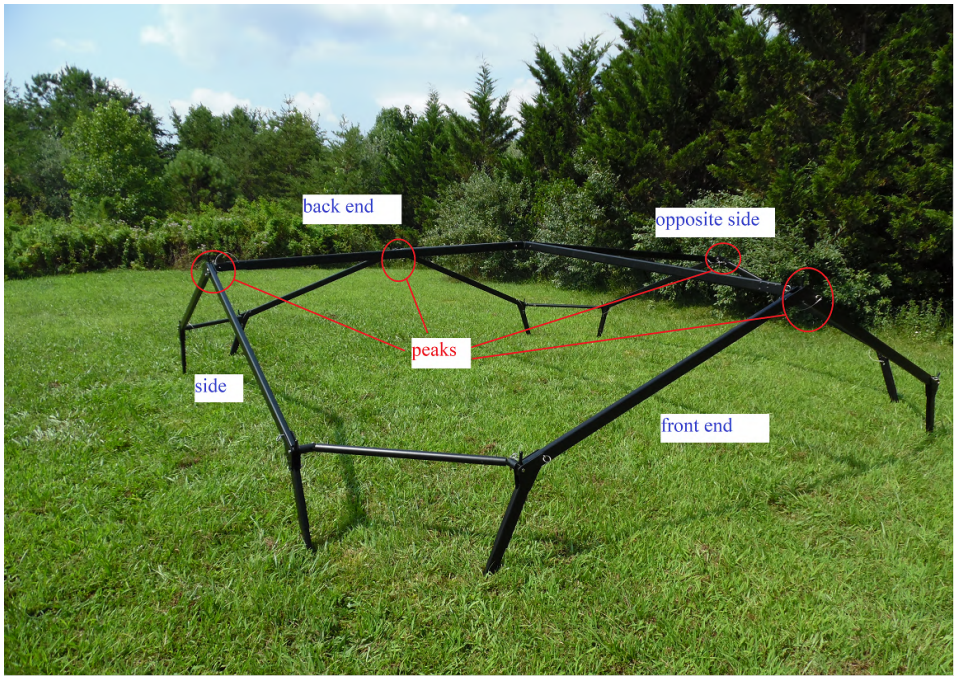
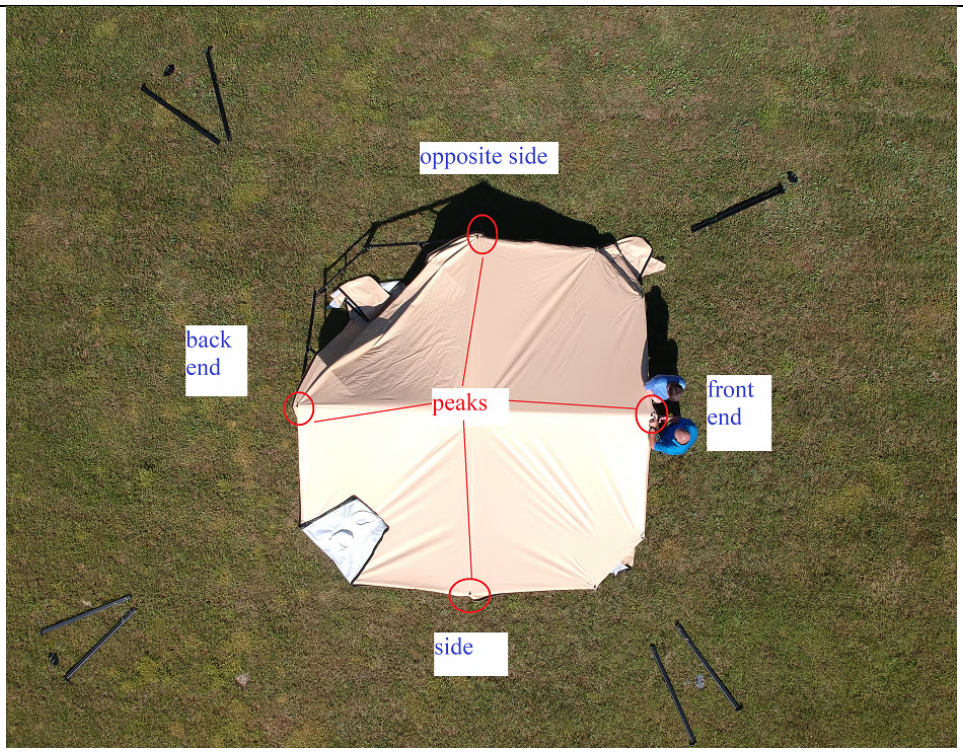
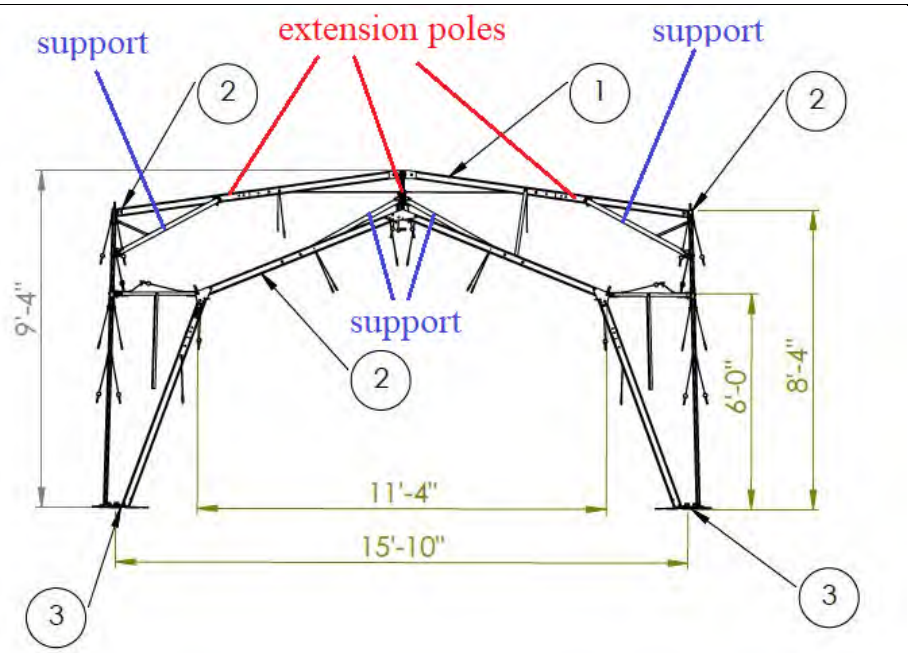
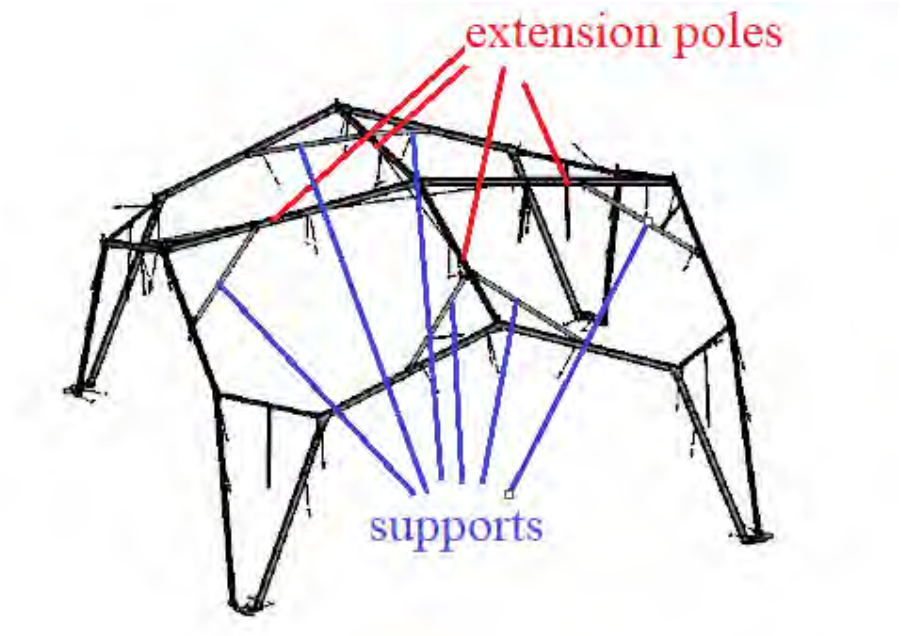
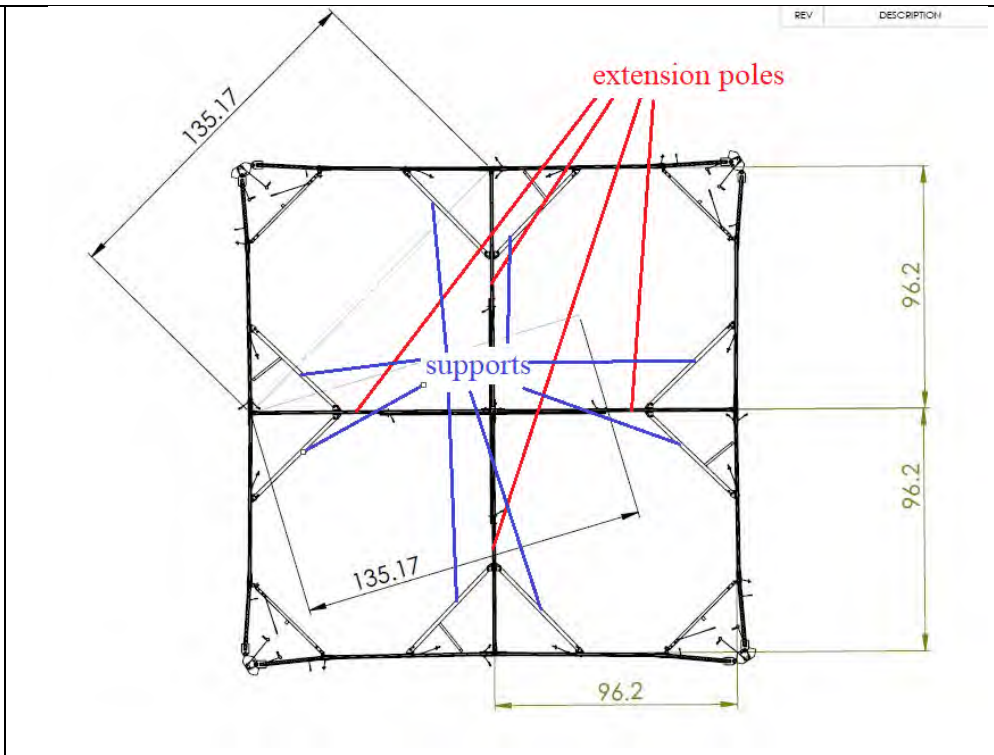


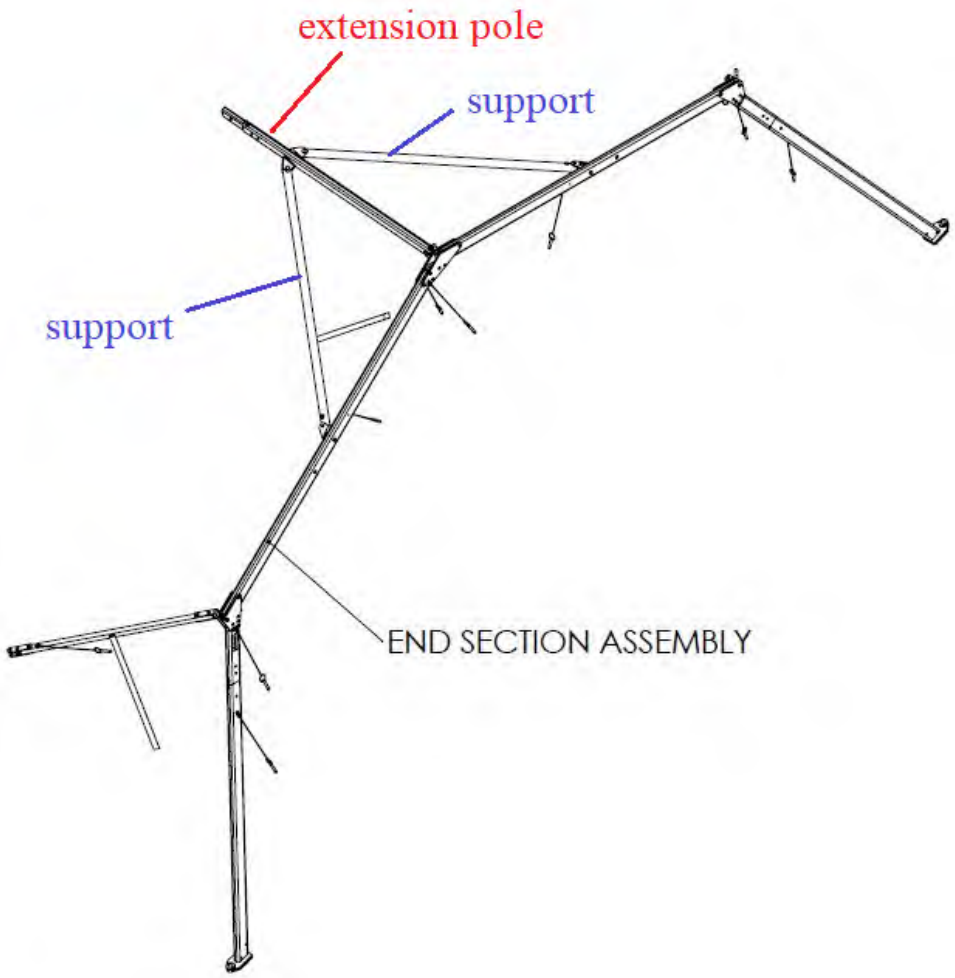
Photo C (Photos EE and P are similar)

	 Photo V (Photos DD, W and X are similar) This feature has been common in many shelter designs for centuries.
9. The rapid-deployment shelter of claim 8 including a set of supports, with one support extending between each extension pole to an upper frame pole and	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1, 2 and 3 show a set of supports, with one support extending between each extension pole to an upper frame pole and one support extending between each extension pole to a second upper frame pole.

one support extending between each extension pole to a second upper frame pole.	 Sheet 1-A  Sheet 1-B


REV
DESCRIPTION
extension poles
135.17
96.2
supports
96.2
135.17
96.2

Sheet 2



Sheet 3-A

Photo M shows one support extending between extension pole to an upper frame pole and one support extending between extension pole to a second upper frame pole. Photo P shows supports extending between extension poles to upper frame poles and to second upper frame poles.

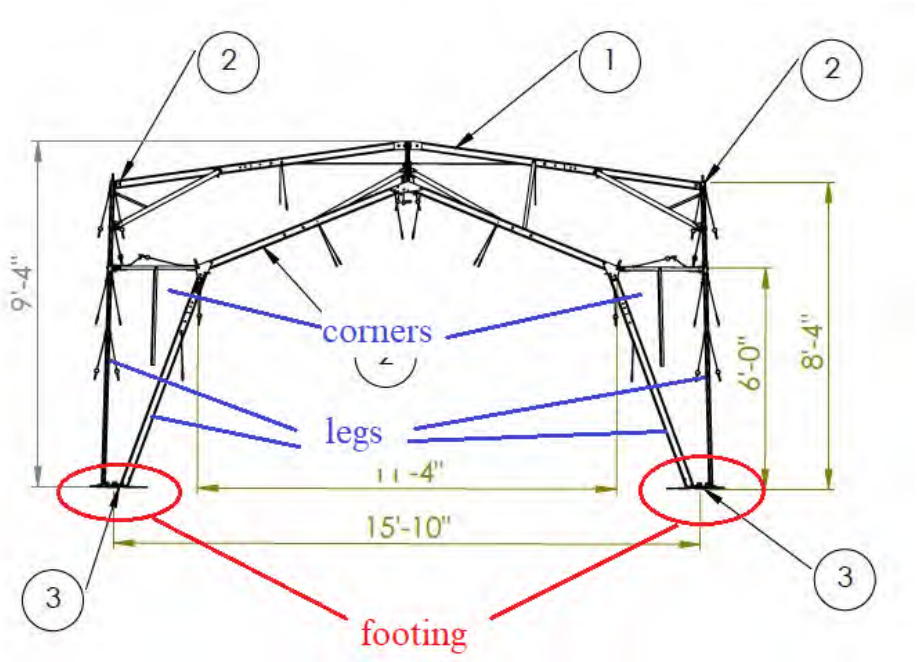


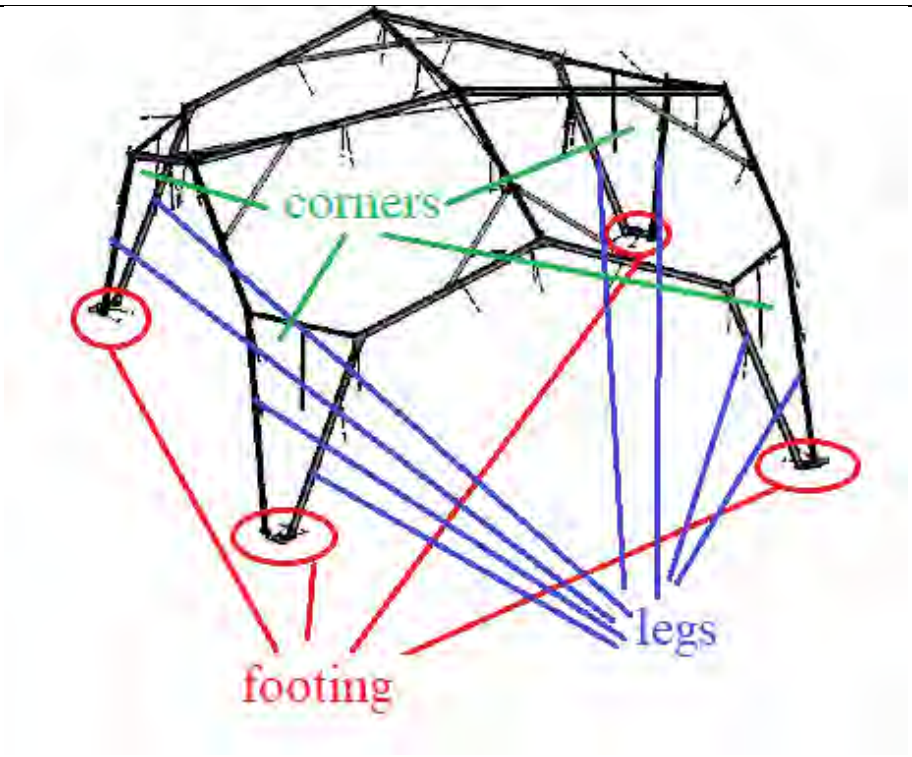
Photo M



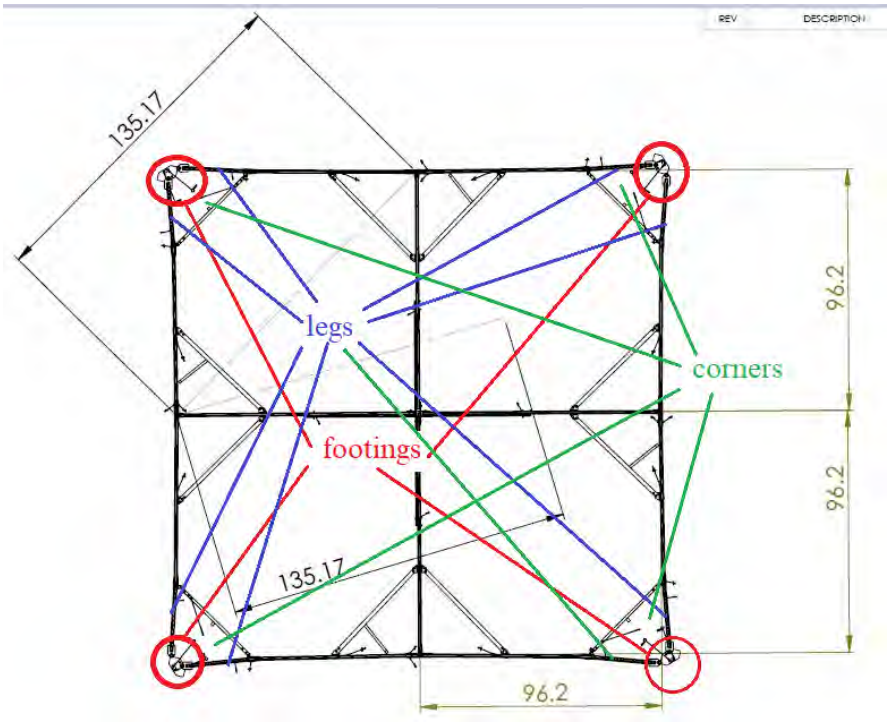
Photo P

This design feature has been common in shelters to improve the strength and durability against shear due to high winds.

10. The rapid-deployment shelter of claim 8 wherein each leg forming a corner meets at a leg footing.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1 and 2 show that each leg forming a corner meets at a leg footing.  Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, B, BB, DD, J, K, L, M (inside), N and O show that each leg forming a corner meets at a leg footing.

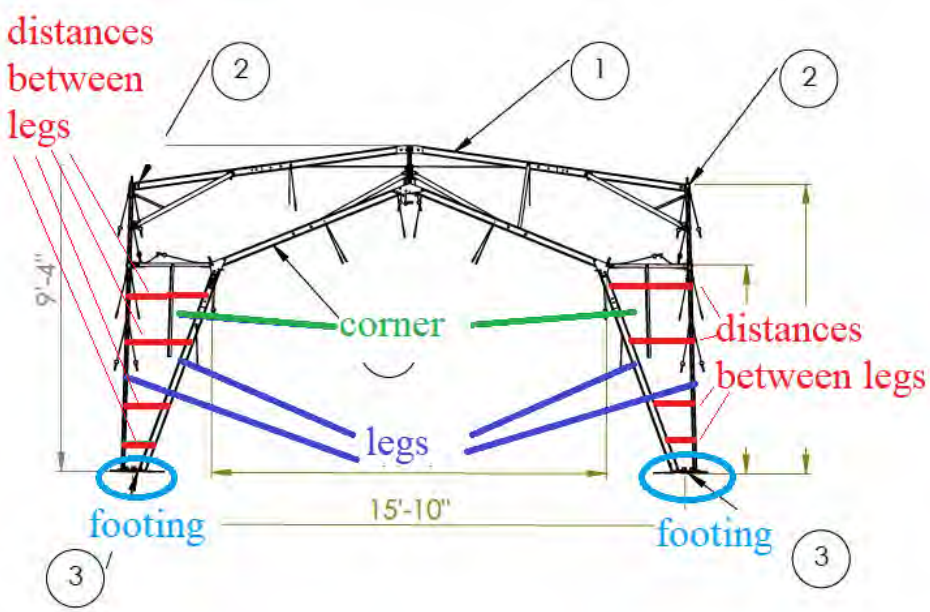


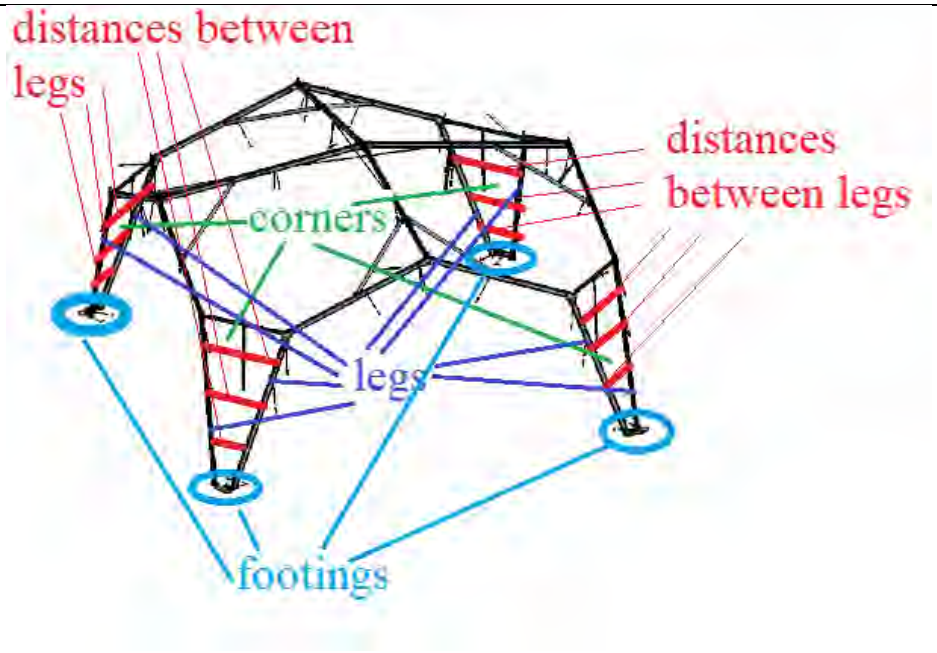
Photo A (Photos B, BB, DD, J, K, L, N and O are similar)



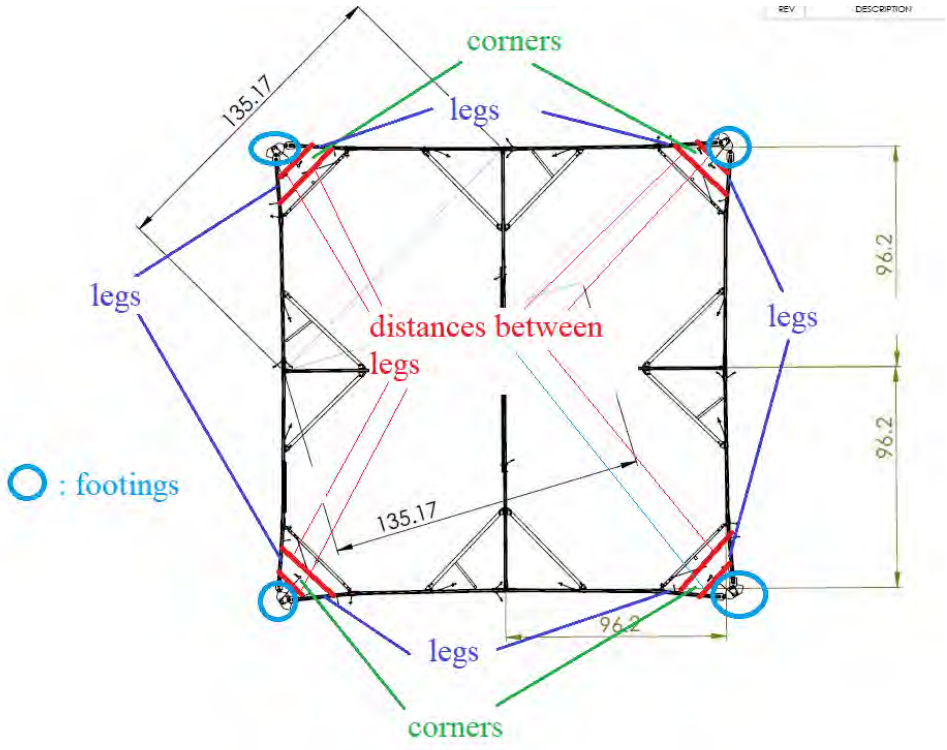
Photo M

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

	This design feature has been used in shelters for centuries.
11. The rapid-deployment shelter of claim 8 where the distance between each leg forming the corner narrows between the shoulders of the corner and the set of leg footings.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Narrowing is decreasing the distance between two lines or objects in this context. Sheets 1 and 2 show that the distance between each leg forming the corner narrows between the shoulders of the corner and the set of leg footings.  Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, B, BB, C, CC, D, DD, EE, G, J, K, L, M (inside), N and O show that the distance between each leg forming the corner

narrows between the shoulders of the corner and the set of leg footings.

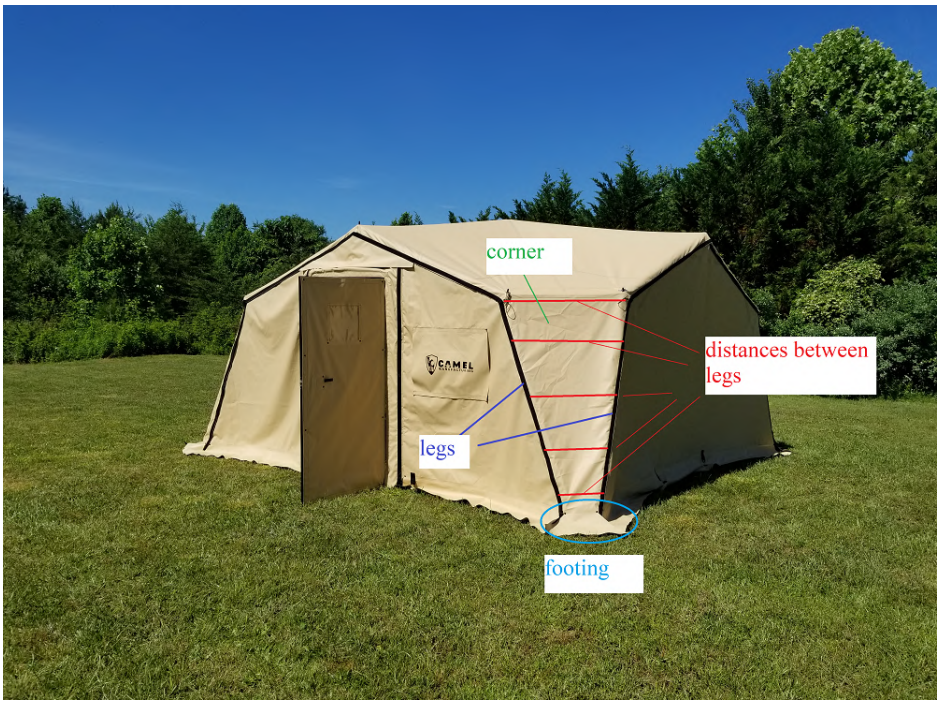


Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

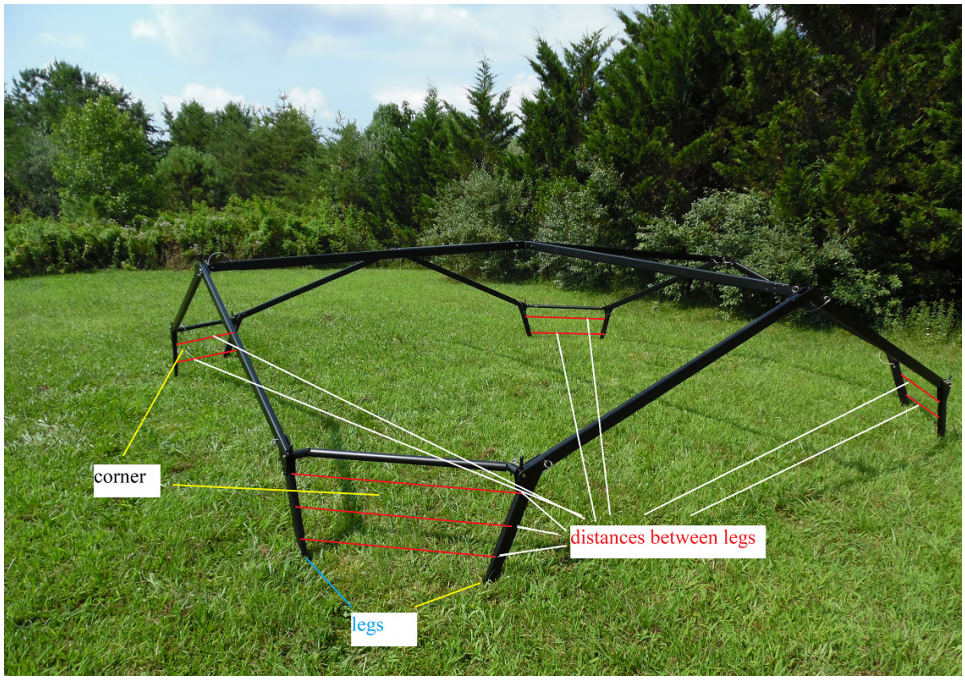


Photo C (Photos D and EE are similar)

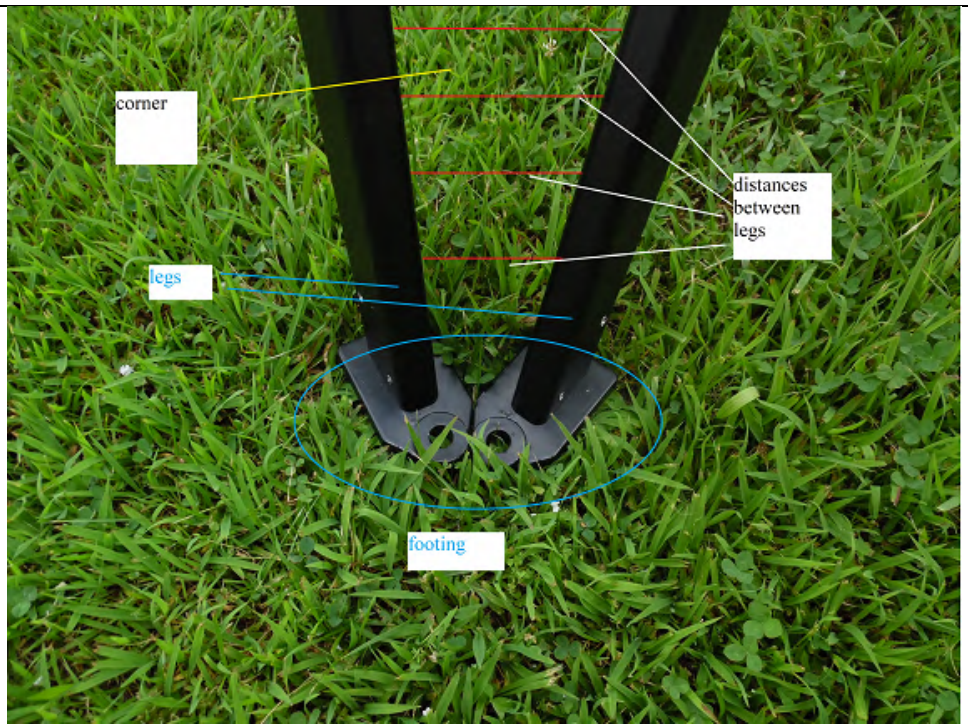
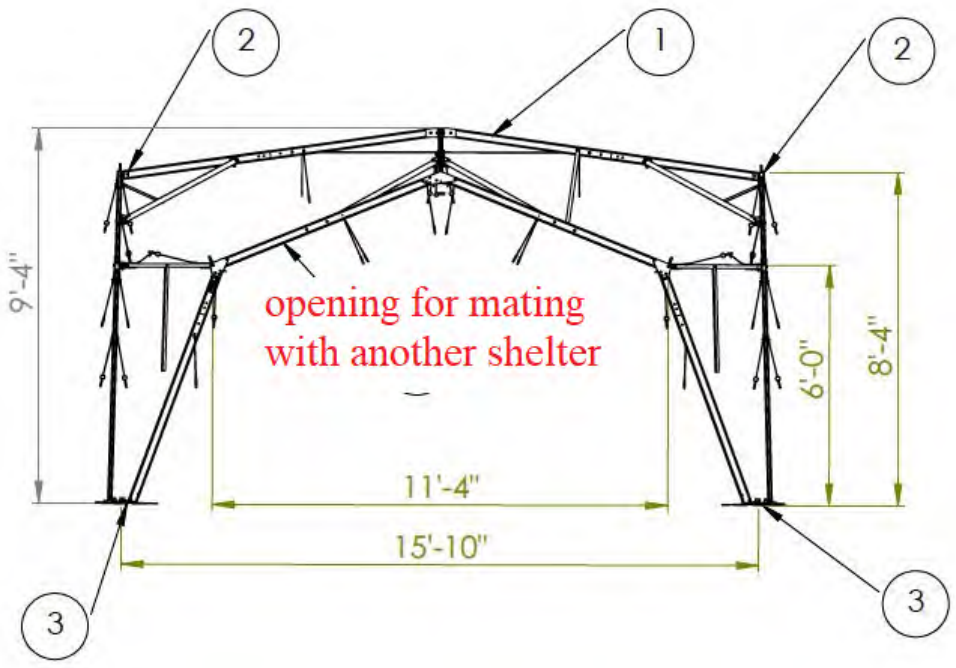


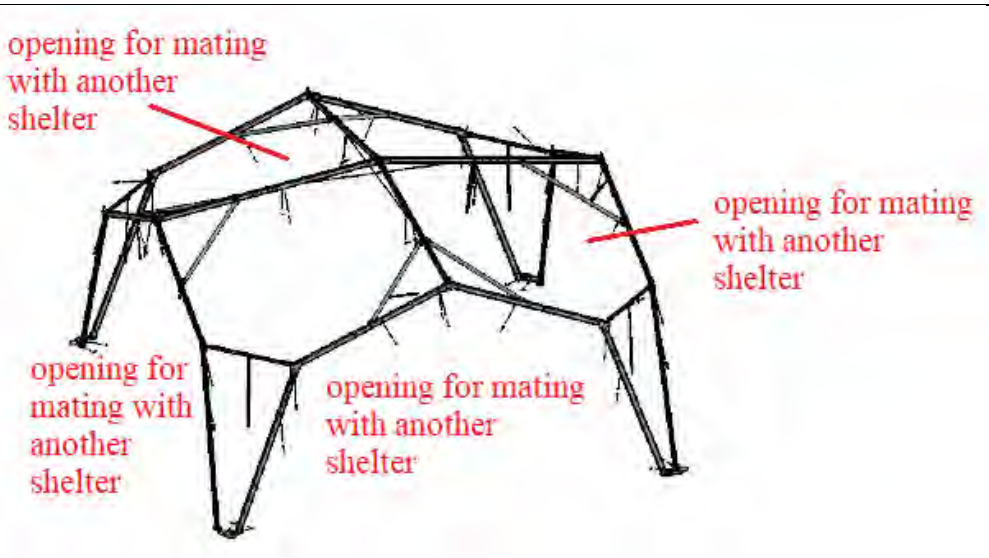
Photo G



Photo M

This design feature has been common in shelters over the centuries.

	Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.
12. The rapid-deployment shelter of claim 1 wherein each of the frame front end, back end, side and opposite side is adapted to provide an opening for mating with another shelter.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheet 1 shows that each of the frame front end, back end, side and opposite side is adapted to provide an opening for mating with another shelter. With the use of properly designed shoulders, other shelters may be mated with each side of the shelter.  Sheet 1-A



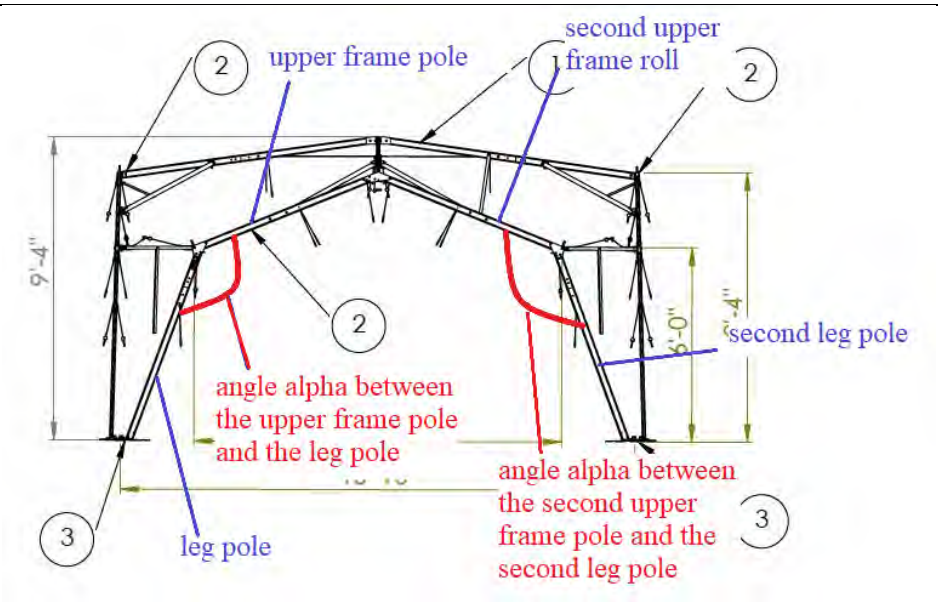
Sheet 1-B

Photos BB, C, CC, D, DD, EE, and P show that each of the frame front end, back end, side and opposite side is adapted to provide an opening for mating with another shelter and as a result, 3 new shelters are mated with the hub shelter. A 4th shelter can also be easily added to the front end of the hub shelter.

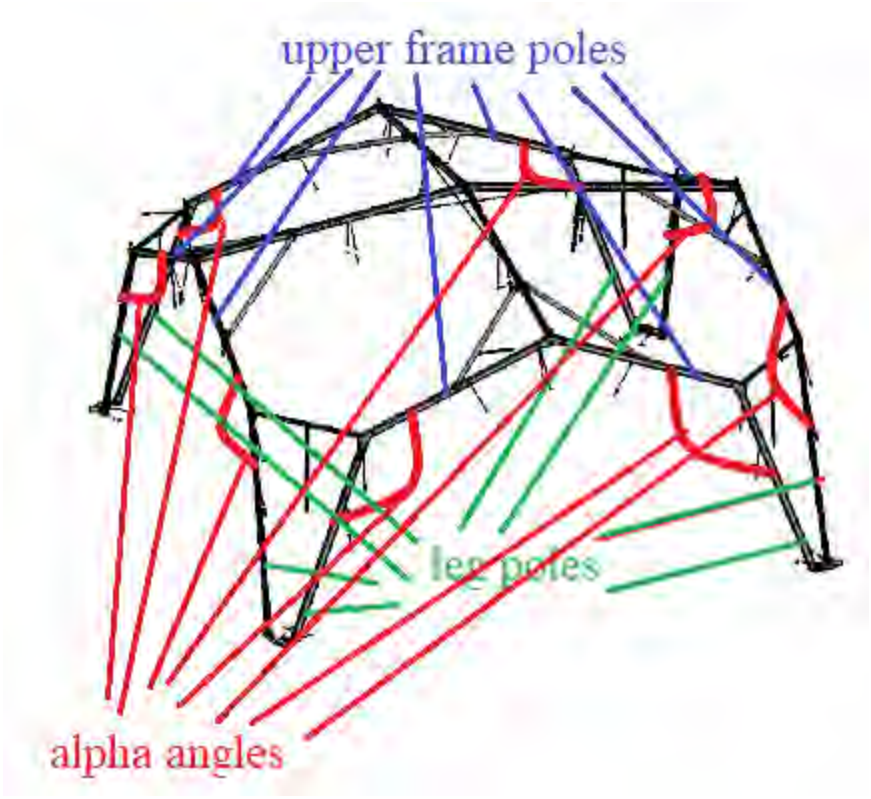


Photo BB (Photos CC, and DD are similar)

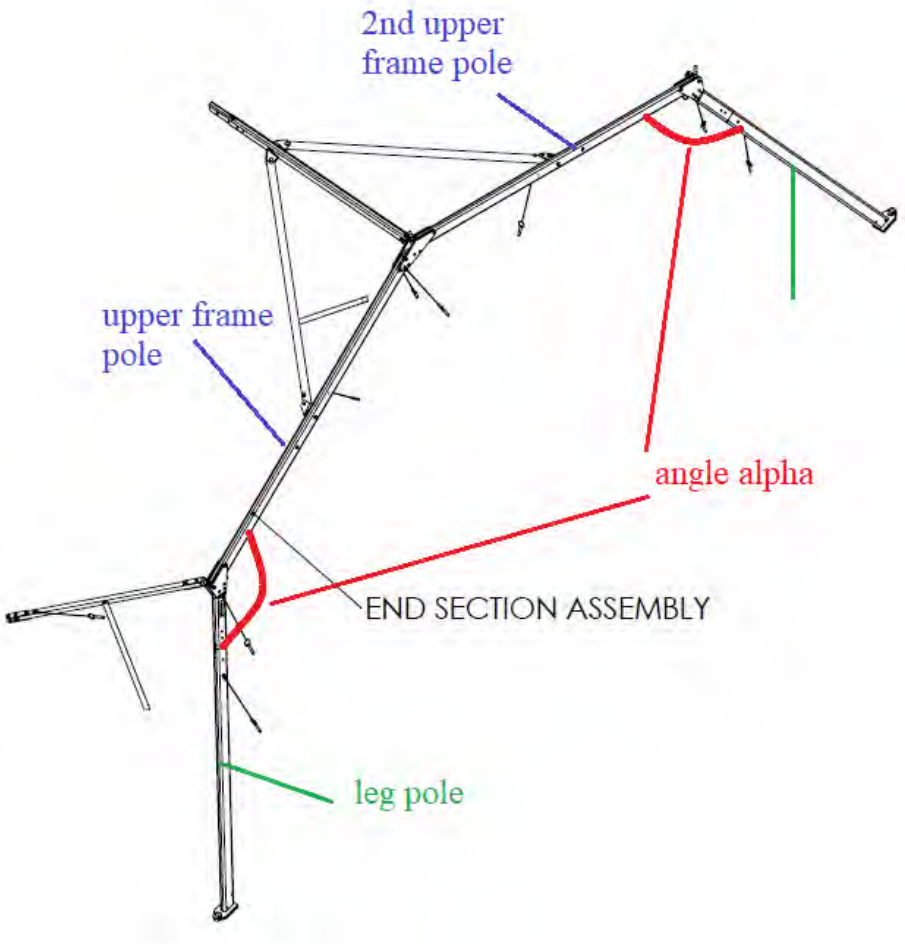
	Photo C shows that the shoulders can be easily adapted to receive the frame of another shelter on each side of the hub shelter.  Photo C (Photos D, EE and P are similar) Mating multi-shelters has been a common practice in military, medical and other applications.
13. The rapid-deployment shelter of claim 1 including an angle alpha between the upper frame pole and the leg pole and between the second upper frame pole and the second leg pole.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1 and 3 show an angle alpha between the upper frame pole and the leg pole and between the second upper frame pole and the second leg pole.



Sheet 1-A



Sheet 1-B



Sheet 3

Photos A, B, BB, C, CC, D, DD, EE, J, K, L, M (inside), N and O show an angle alpha between the upper frame pole and the leg pole and between the second upper frame pole and the second leg pole.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

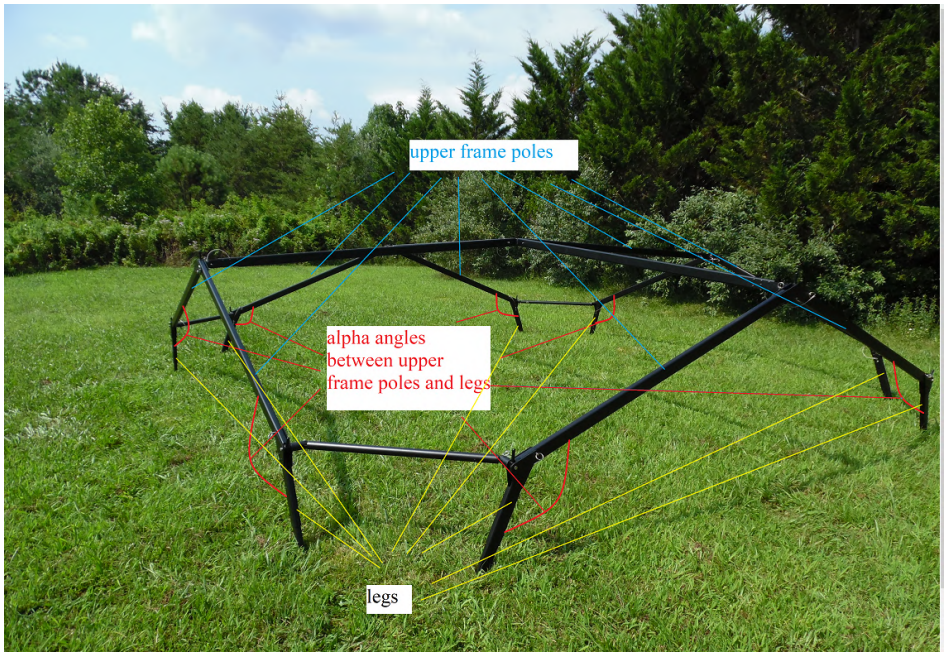
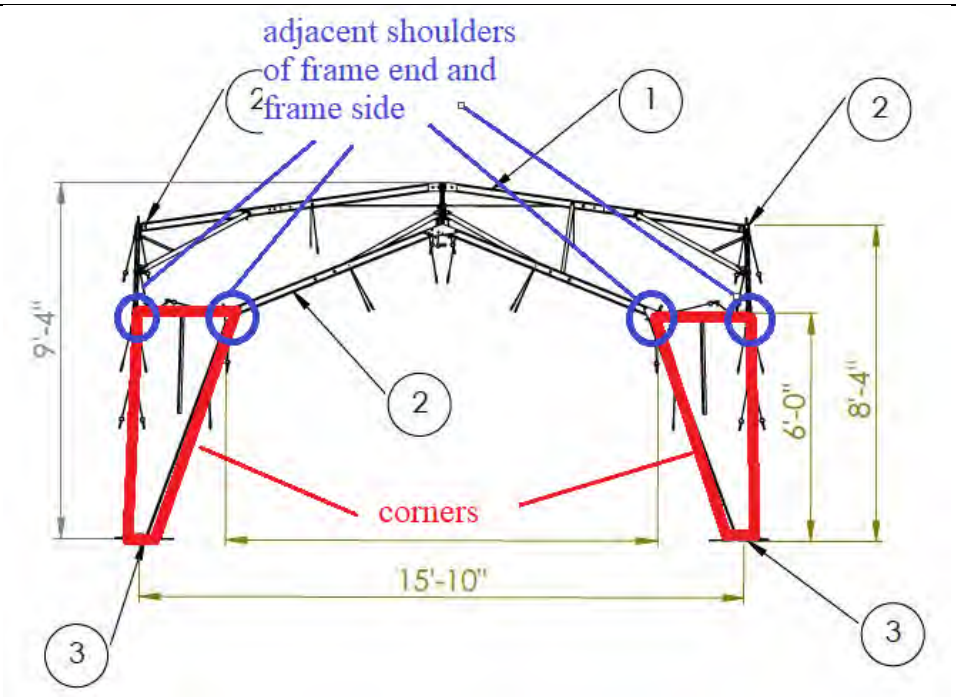
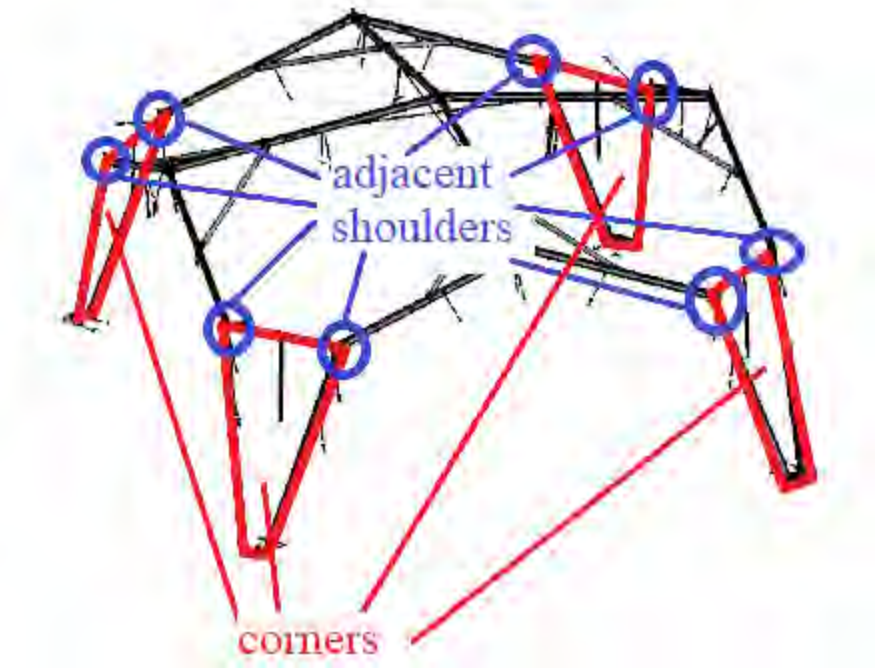


Photo C (Photos D and EE are similar)

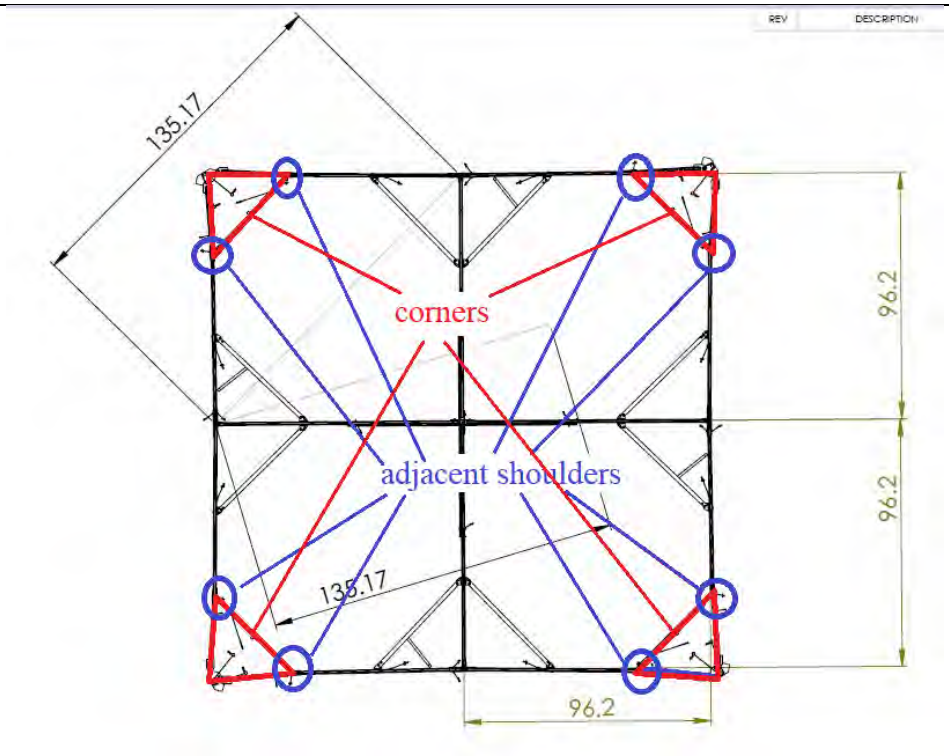
	 Photo M Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. Having an angle between the upper frame pole and the leg pole and between the second upper frame pole and the second leg pole has been a feature of shelter design over the centuries.
14. The rapid-deployment shelter of claim 1 wherein each corner separates adjacent shoulders of a frame end and a frame side.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries. Sheets 1 and 2 show that each corner separates adjacent shoulders of a frame end and a frame side.



Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M (inside), N, O, P, V, W, X, Y and Z show that each corner separates adjacent shoulders of a frame end and a frame side.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

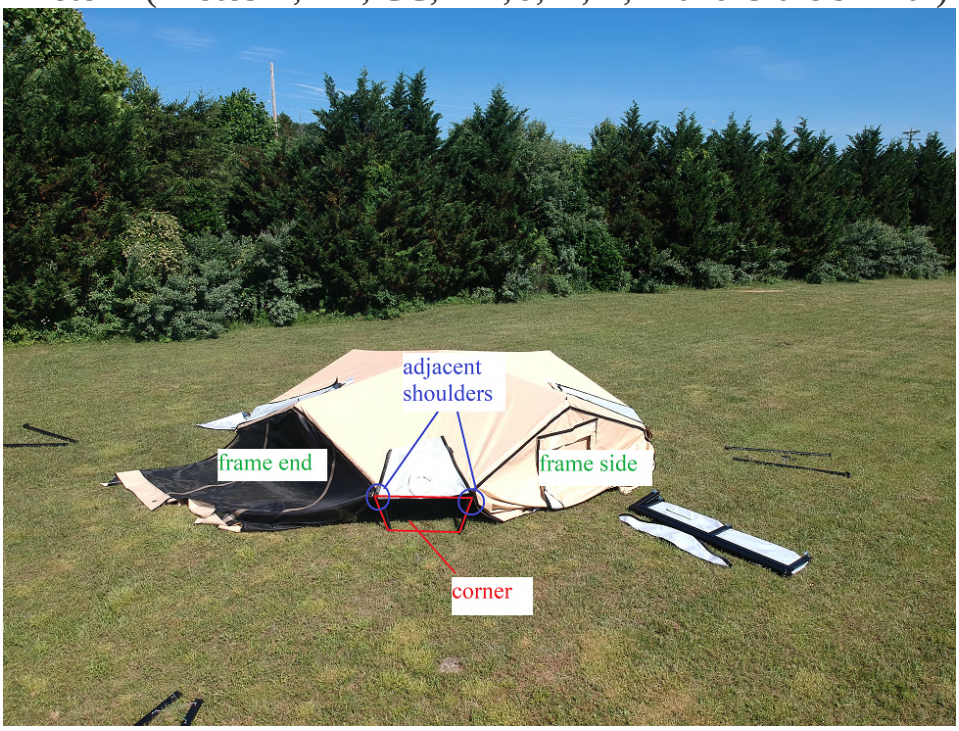


Photo AA (Similar to Photos Y and Z)

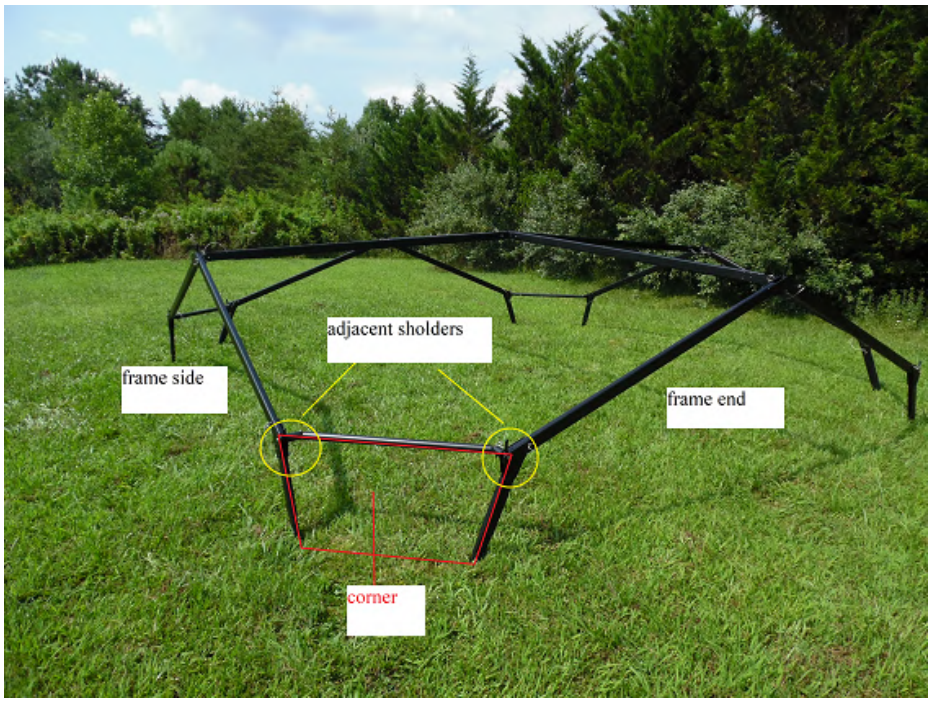


Photo C (Photos D, EE and P)



Photo M

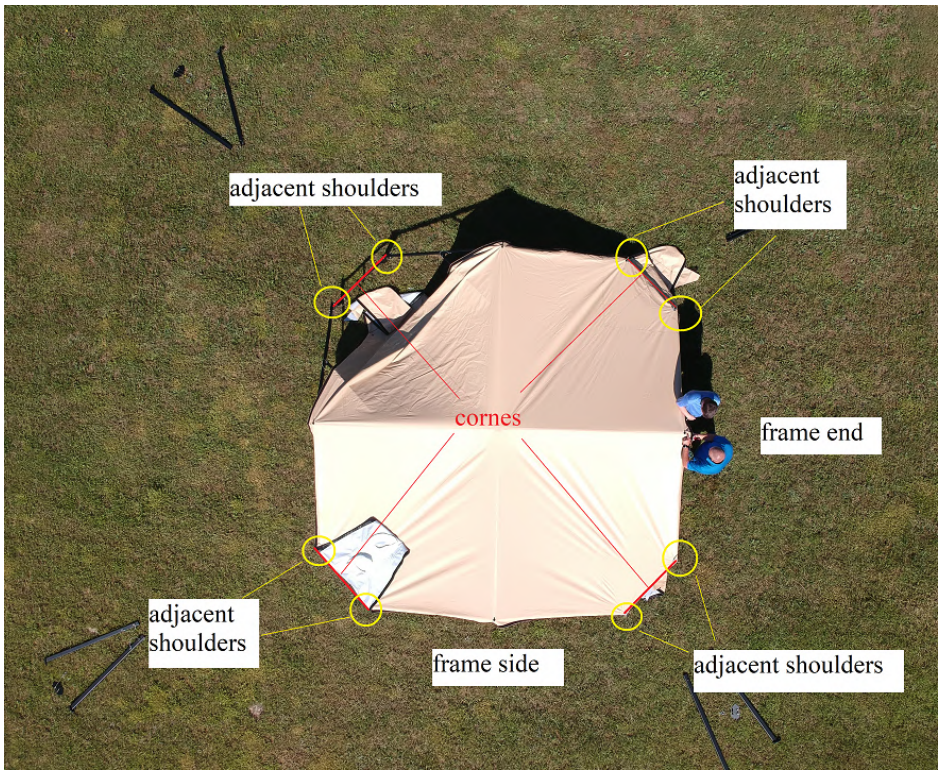
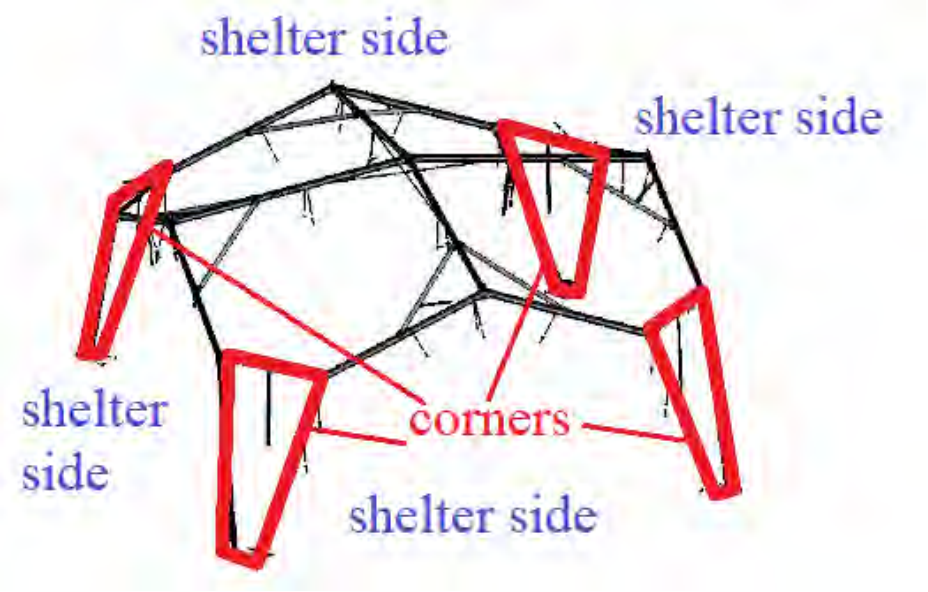
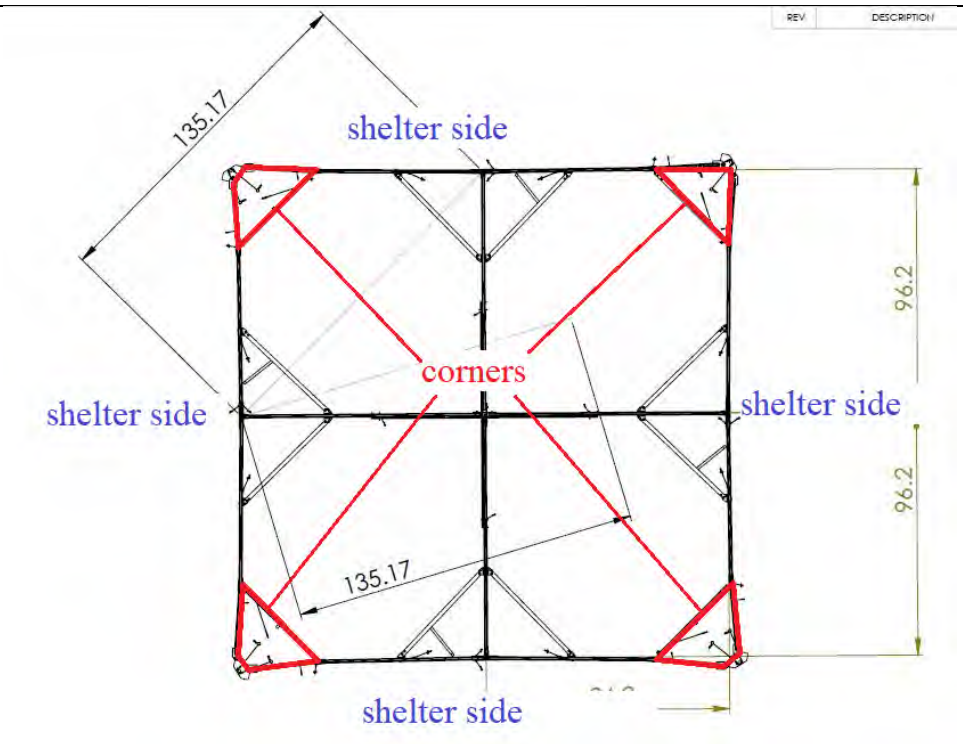


Photo V (Photos W and X are similar)

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

15. A rapid-deployment hub shelter comprising:	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Shelters have been used for centuries.
a four-sided shelter frame including frame corners offset between each of the shelter sides,	Sheets 1 and 2 show a four-sided shelter frame including frame corners offset between each of the shelter sides.  Sheet 1-B



Sheet 2

Photos C, EE, V, W and X show a four-sided shelter frame including frame corners offset between each of the shelter sides.

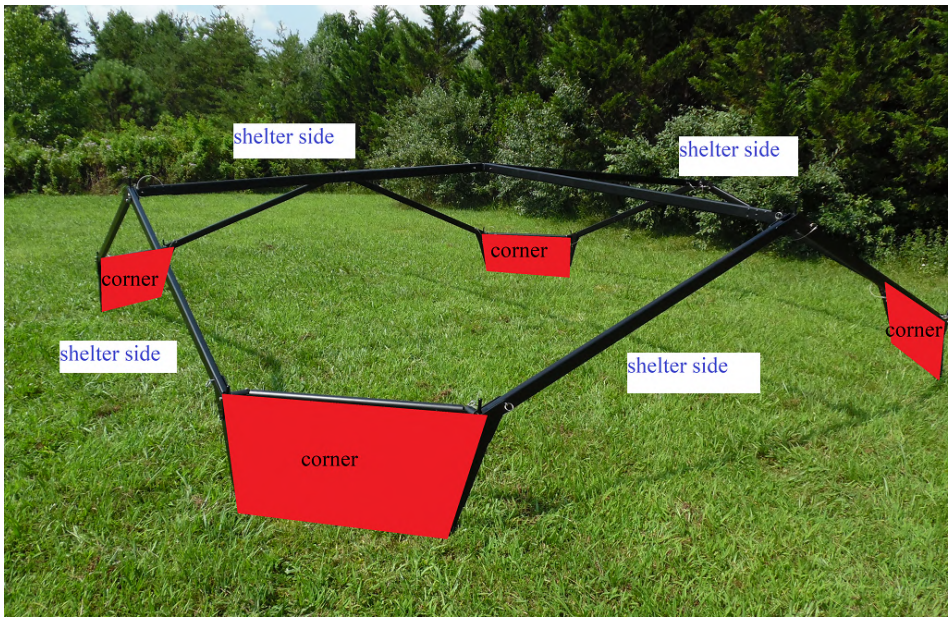
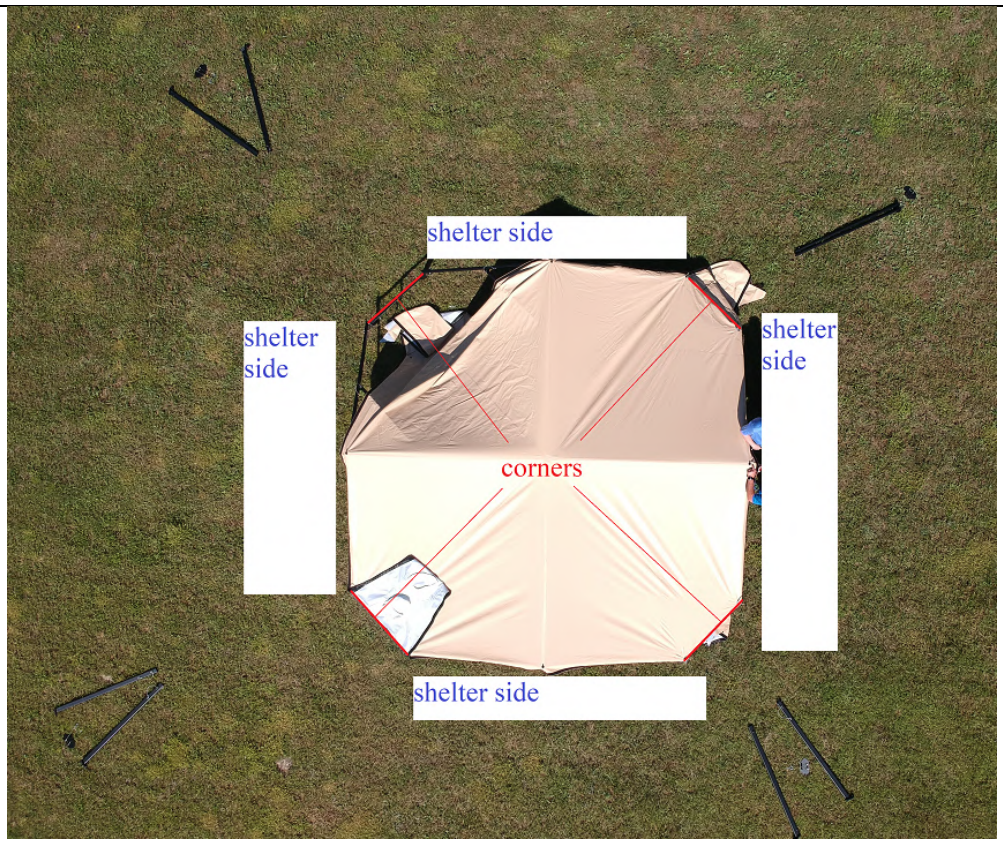
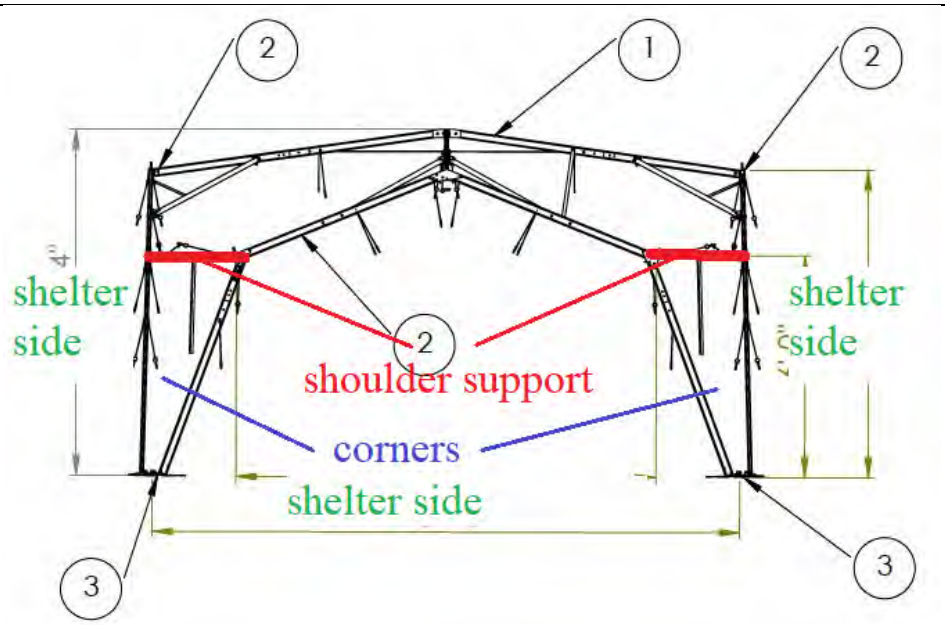
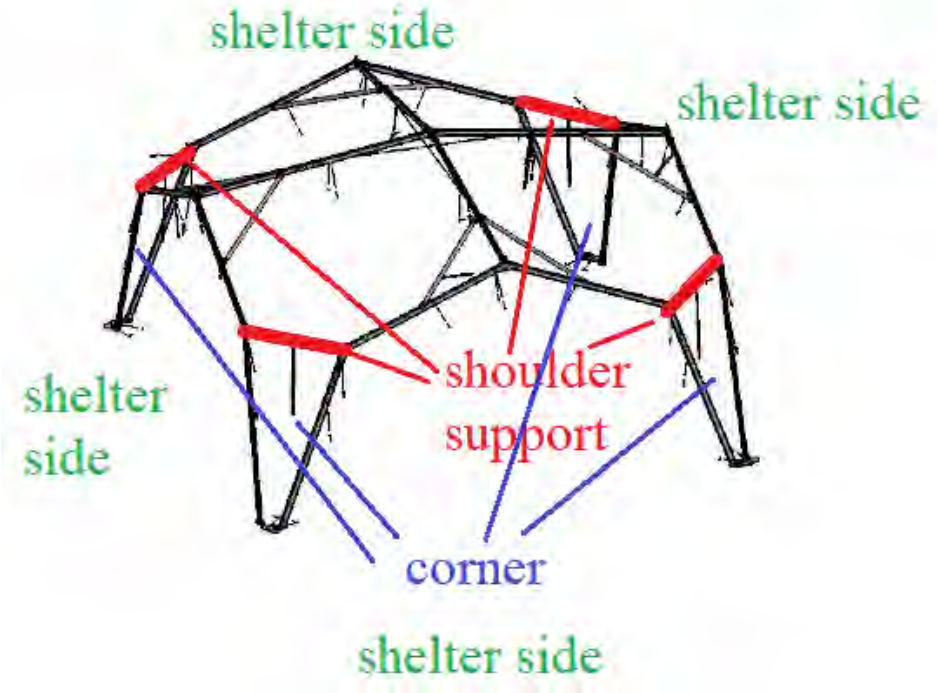


Photo C (Photo EE is similar)

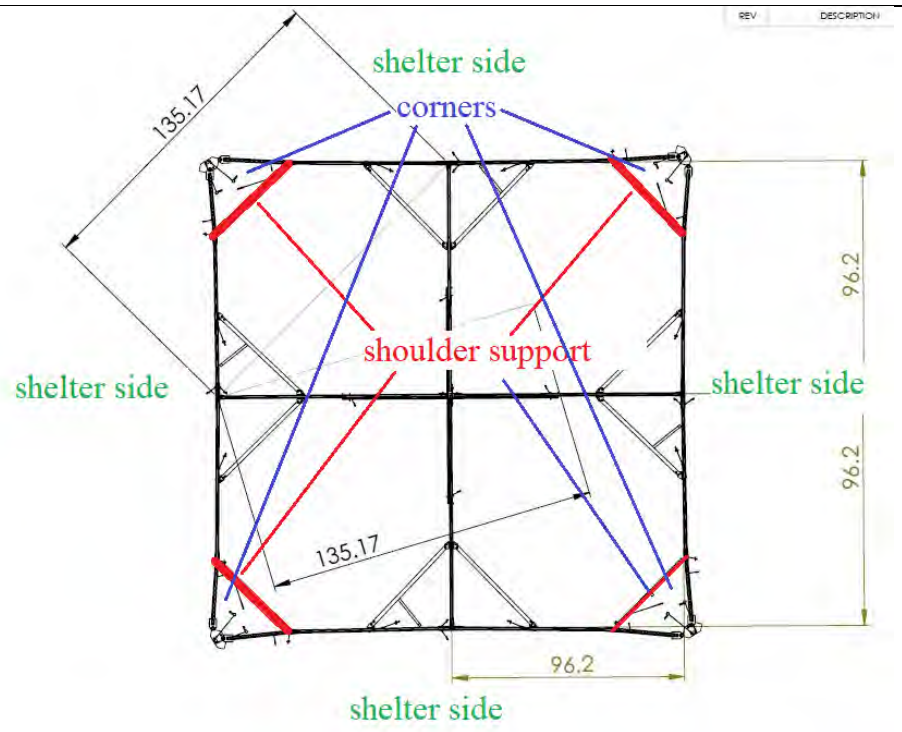
	 Photo V (Photos W and X are similar) This design feature of shelters has been used for centuries. Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. Fabrics are highly flexible structures and cannot support themselves to form a three-dimensional structure without external support such as a frame.
a shoulder support in each corner and extending between each of the adjacent shelter sides,	Sheets 1 and 2 show a shoulder support in each corner that is extending between each of the adjacent shelter sides.



Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M (inside), N, O, P, V, W, X, Y and Z show a shoulder support in each corner that is extending between each of the adjacent shelter sides.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

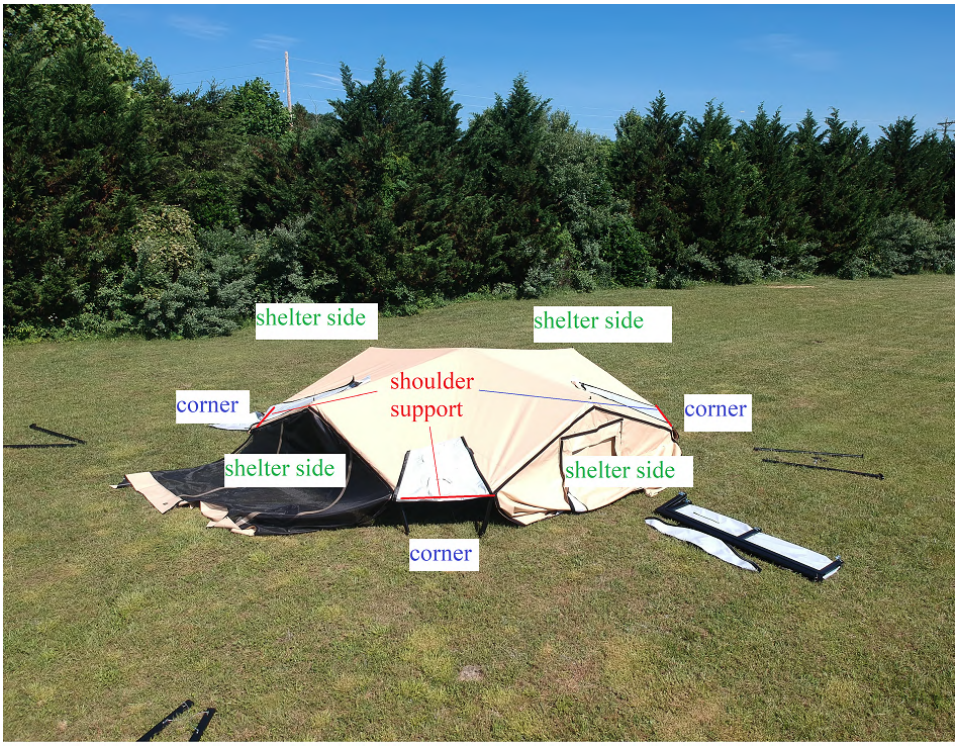


Photo AA (Photos Y and Z are similar)

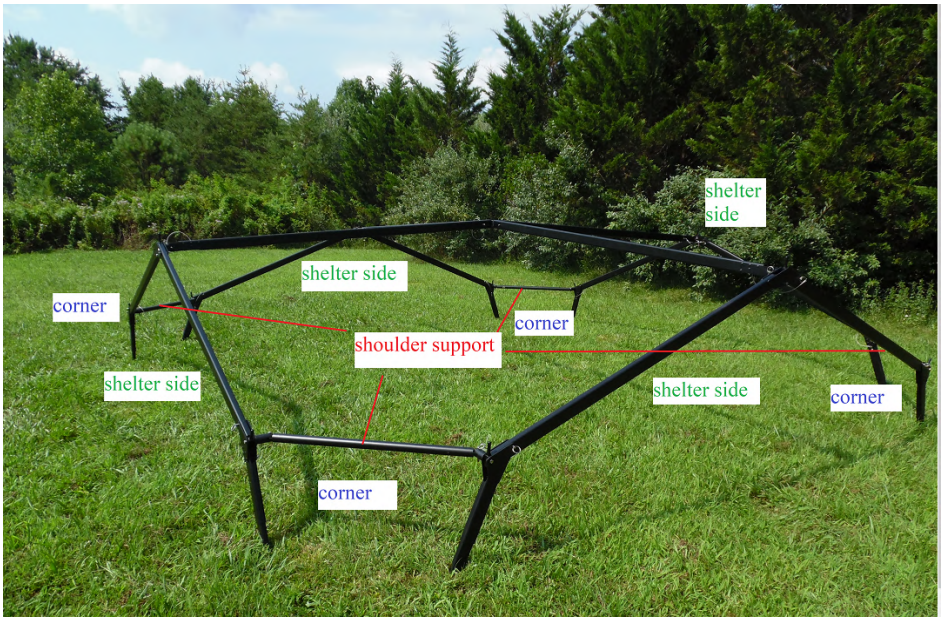


Photo C (Photos D, EE and P are similar)



Photo M

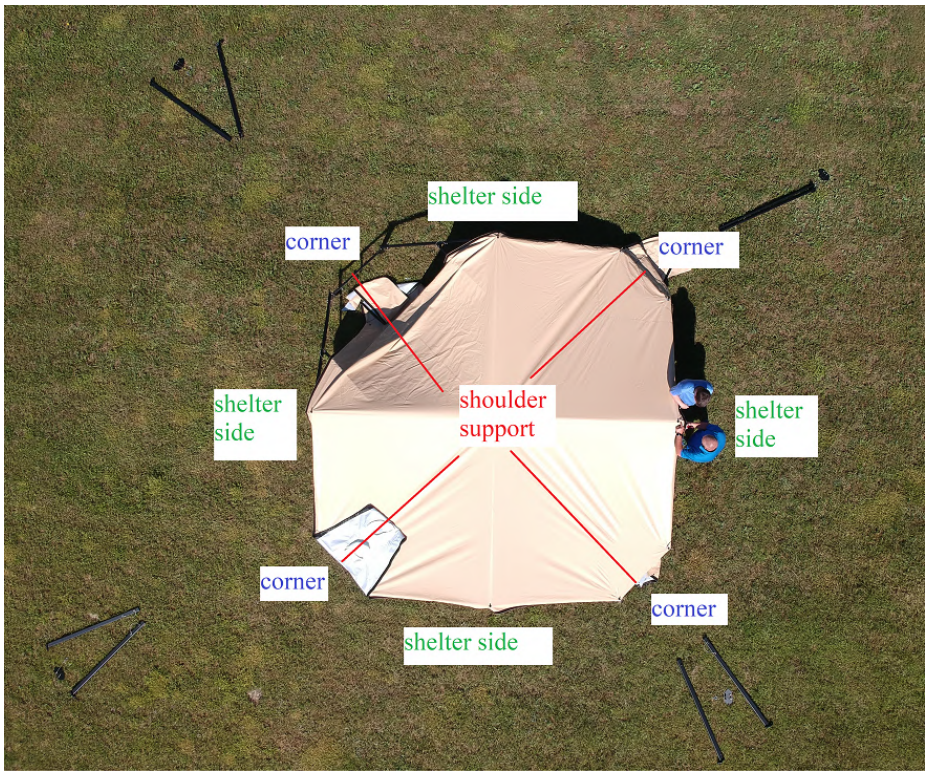
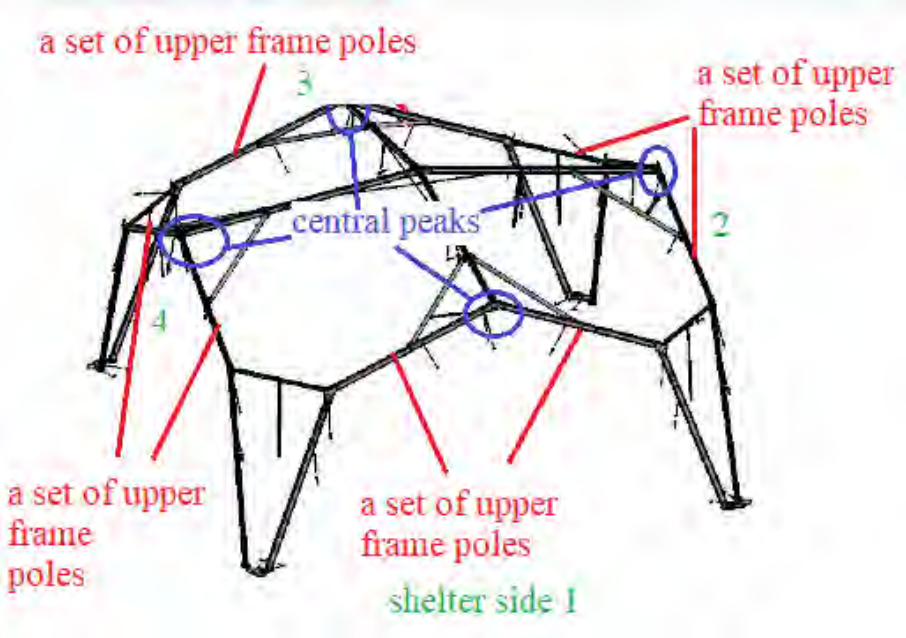
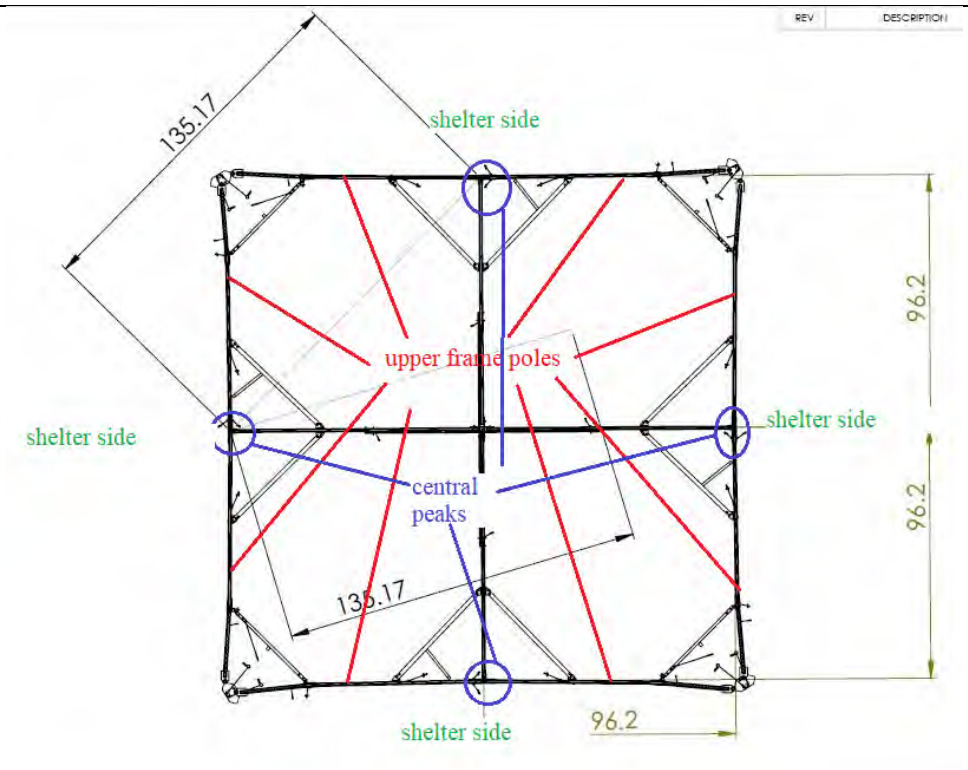


Photo V (Photos W and X are similar)

Shoulder supports have been used in shelters over the centuries.

	Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. Fabrics are highly flexible structures and cannot support themselves to form a three-dimensional structure without external support such as a shoulder support.
a set of upper frame poles on each side of the four-sided shelter frame that mate directly to form a central peak along each shelter side,	Sheets 1 and 2 show a set of upper frame poles on each side of the four-sided shelter frame that mate directly to form a central peak along each shelter side.  Sheet 1-B



Sheet 2

Photos A, AA, B, BB, C, CC, DD, EE, J, K, L, N, O, P, V, W, X, Y and Z show a set of upper frame poles on each side of the four-sided shelter frame that mate directly to form a central peak along each shelter side.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

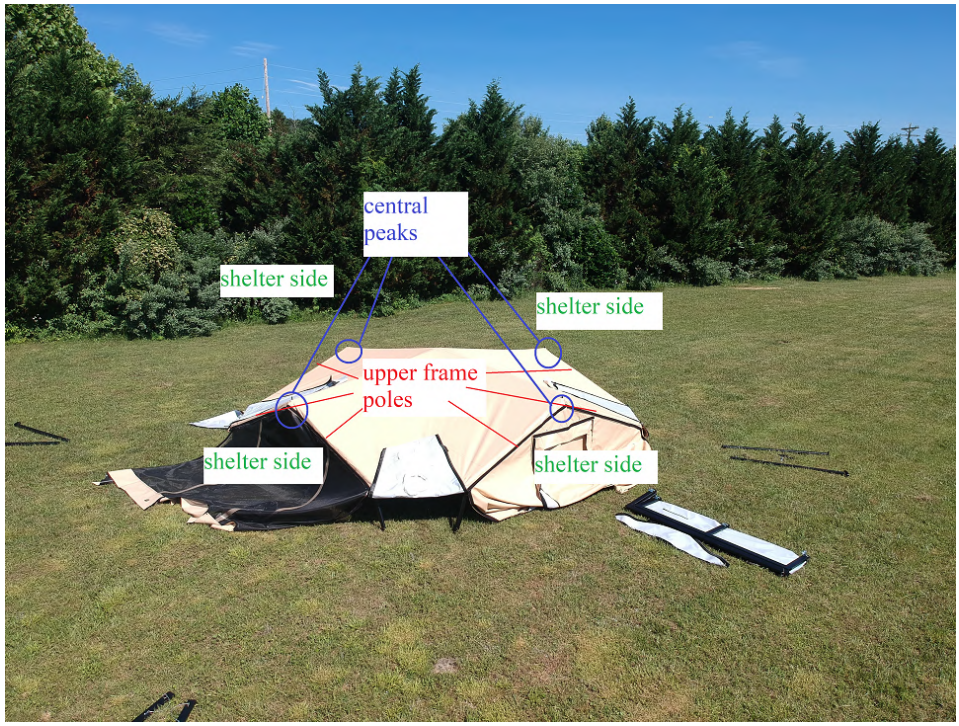


Photo AA (Photos Y and Z are similar)

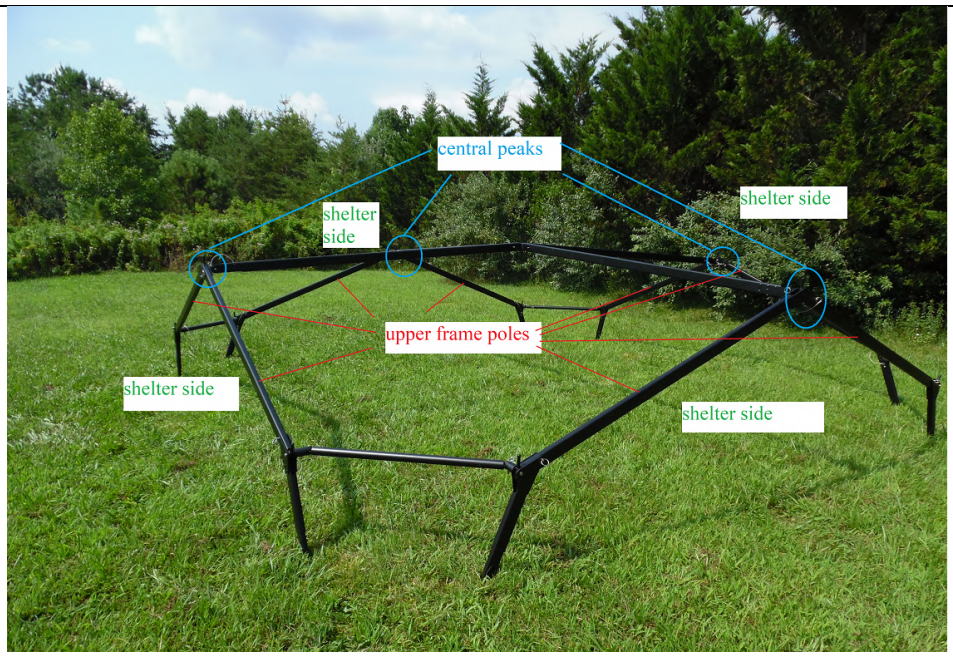


Photo C (Photos EE and P are similar)

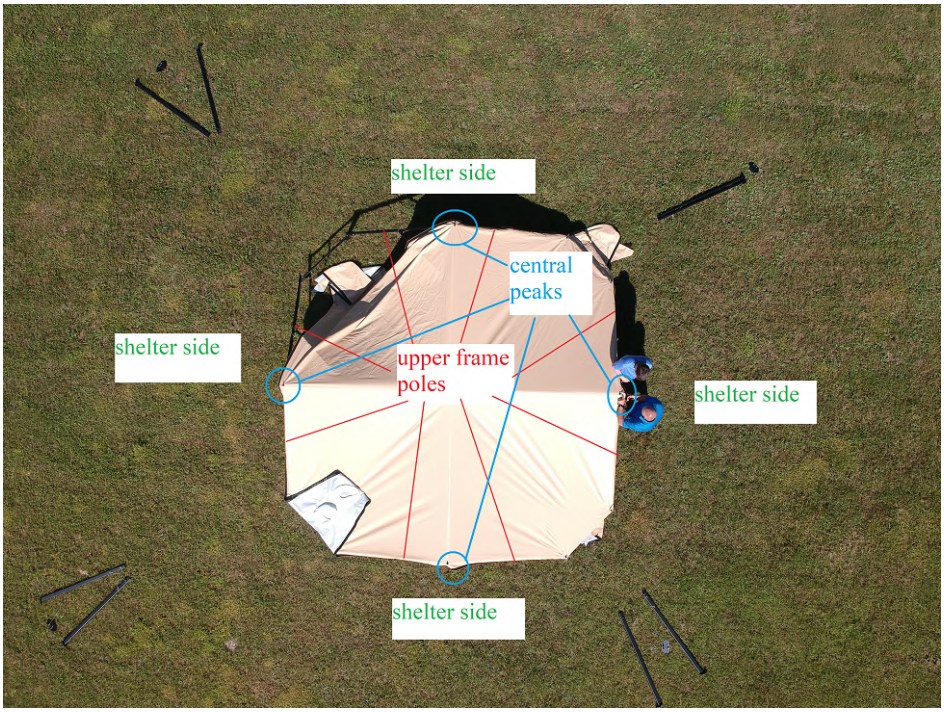
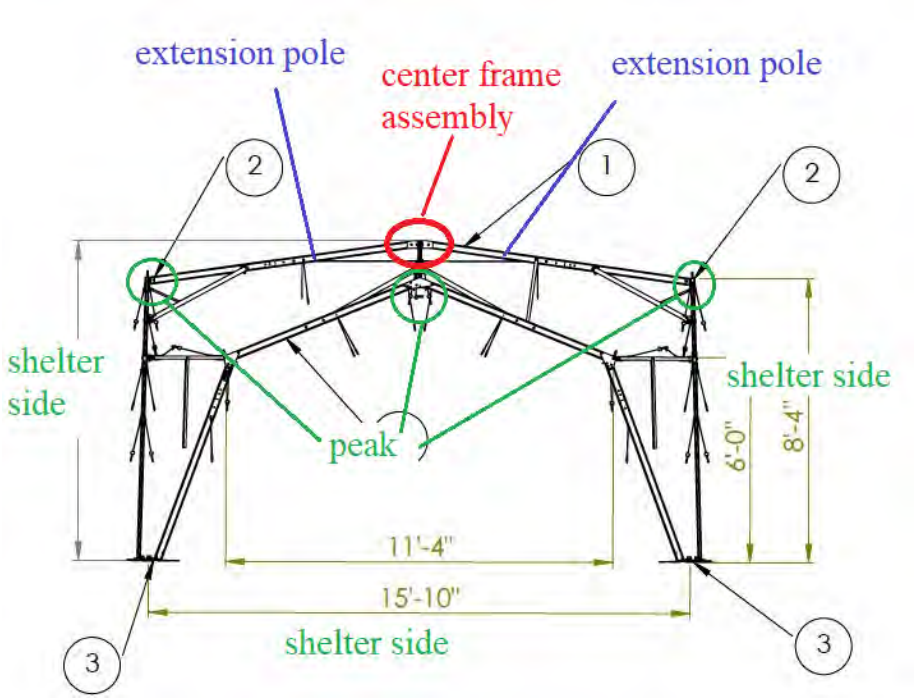
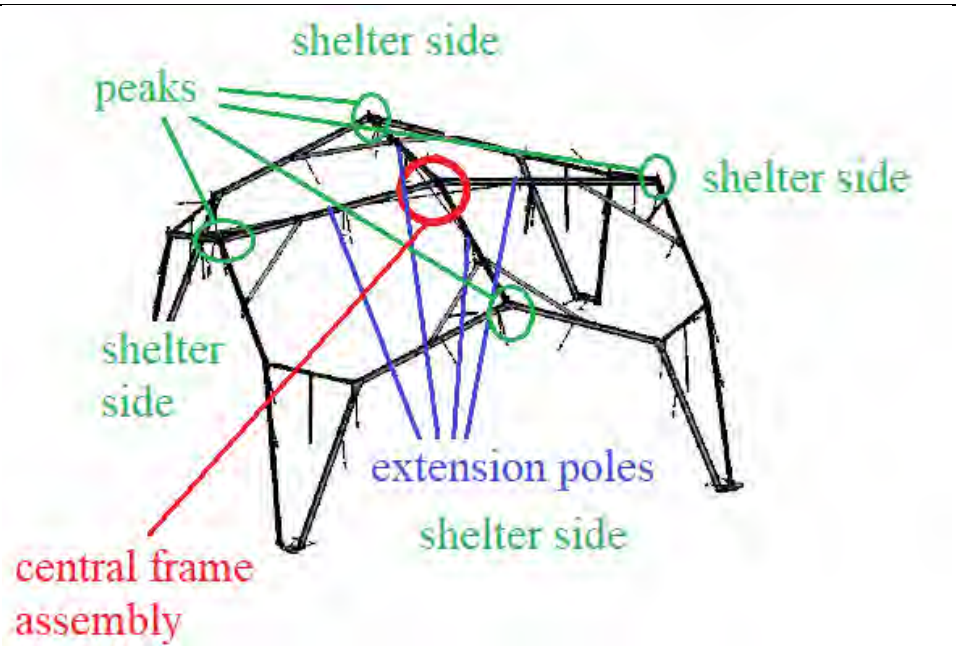


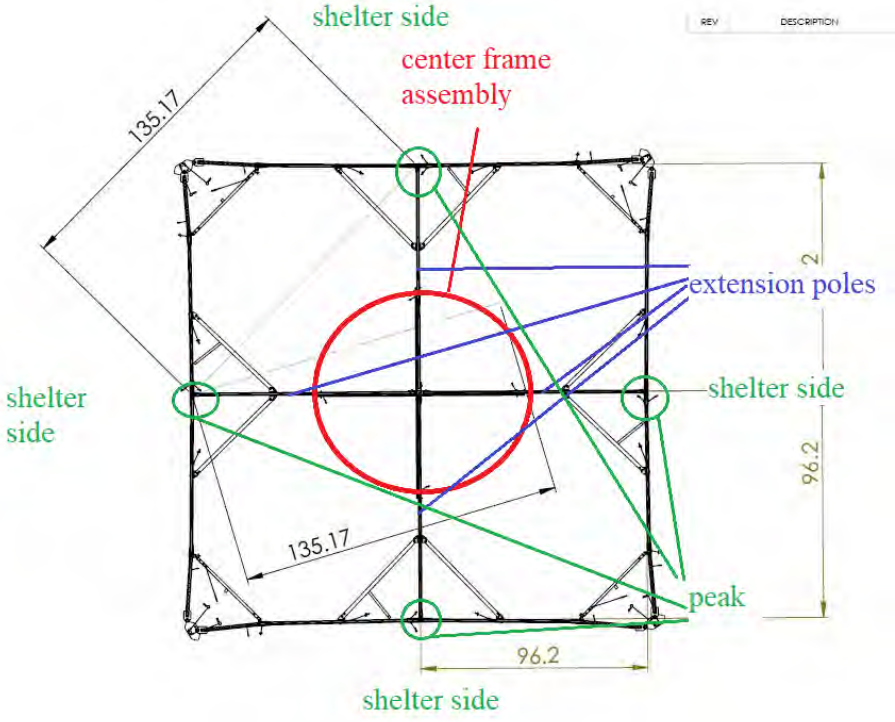
Photo V (Photos W and X are similar)

Upper frame poles that mate and form a central peak along each shelter side have been used in shelters for centuries.

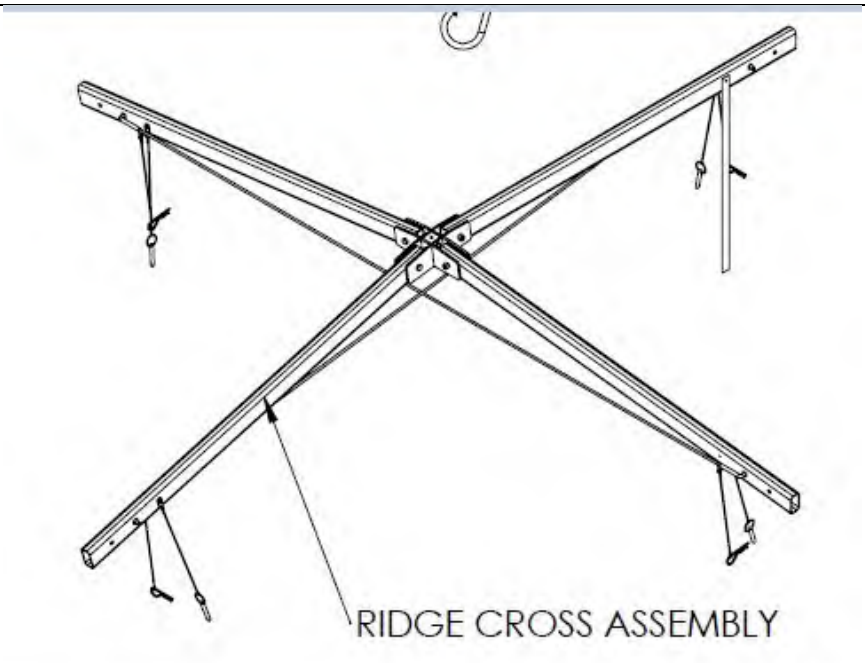
	Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. Fabrics are highly flexible structures and cannot support themselves to form a three-dimensional structure without external support such as upper frame poles.
a central frame assembly having extension poles that extend from the central frame assembly to each peak along each shelter side,	Sheets 1, 2 and 3 show a center frame assembly that have extension poles that extend from the central frame assembly to each peak along each shelter side.  Sheet 1-A



Sheet 1-B



Sheet 2



Sheet 3-C Central frame assembly

Photos C, EE, F and P show a center frame assembly that have extension poles that extend from the central frame assembly to each peak along each shelter side.

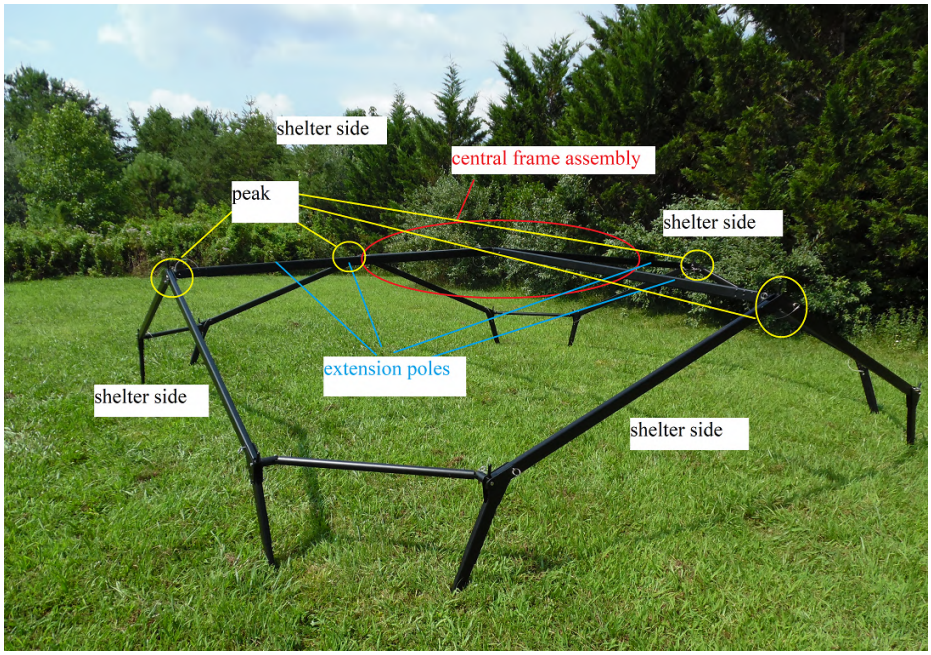
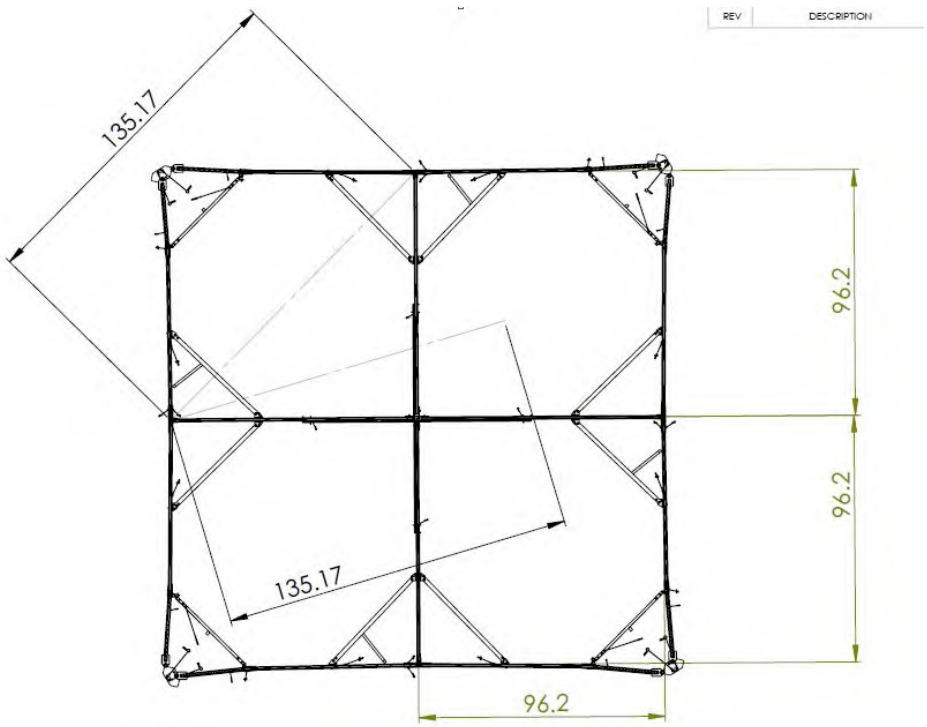
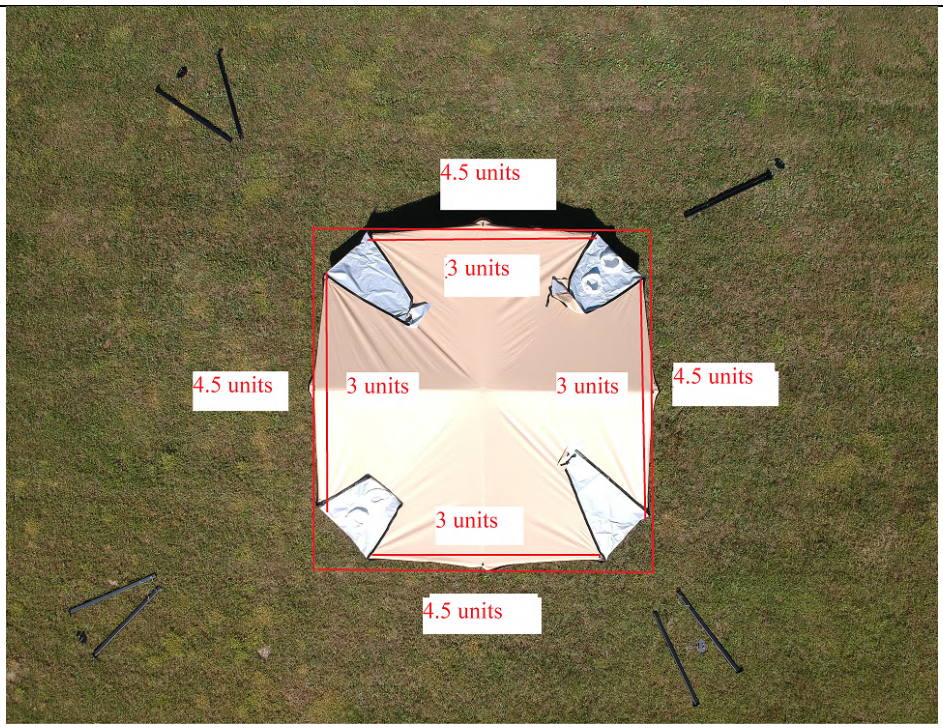
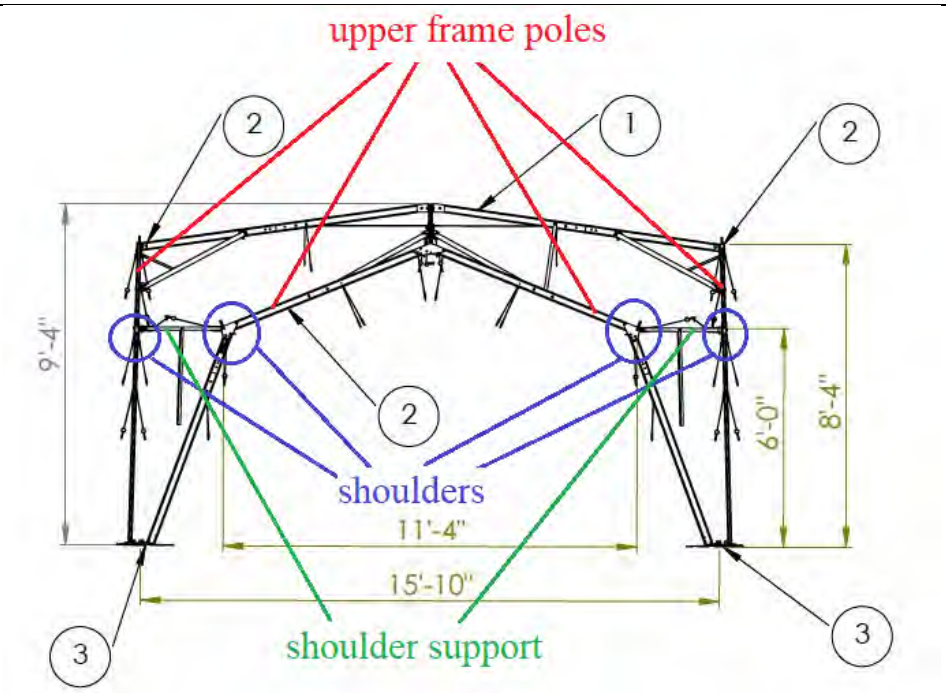


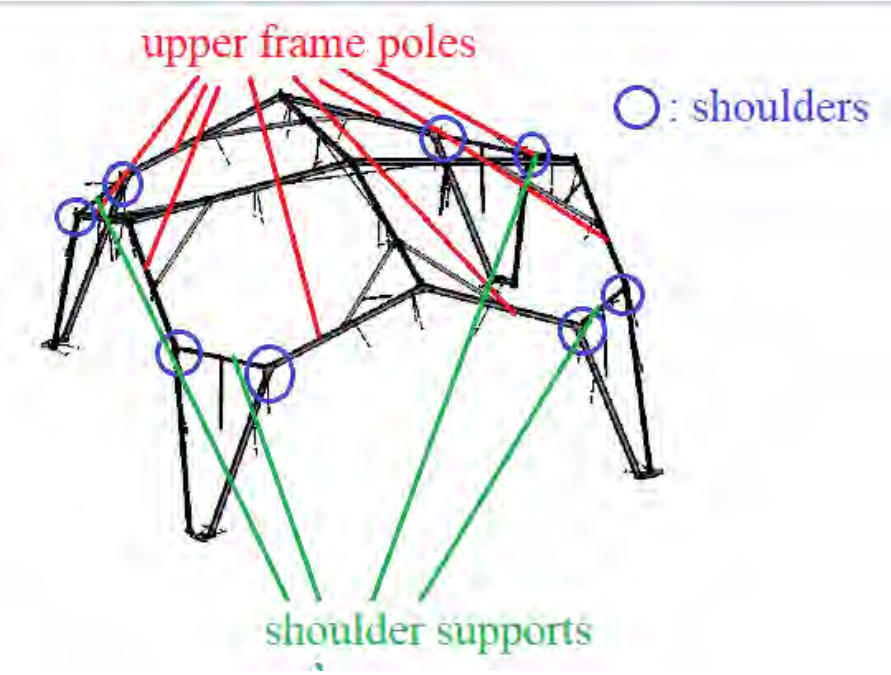
Photo C (Photos EE, F and P are similar)

	Central frame assemblies with extension poles that extend from the central frame assembly to each along each shelter side have been used in shelters for centuries. Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. Fabrics are highly flexible structures and cannot support themselves to form a three-dimensional structure without external support such as central frame assembly and extension poles.
wherein each of the shelter sides have the same frame dimensions.	Sheet 2 shows that each of the shelter sides have the same frame dimensions.  Sheet 2 Photos AA, V, W, X, Y and Z show that each of the shelter sides have the same frame dimensions.

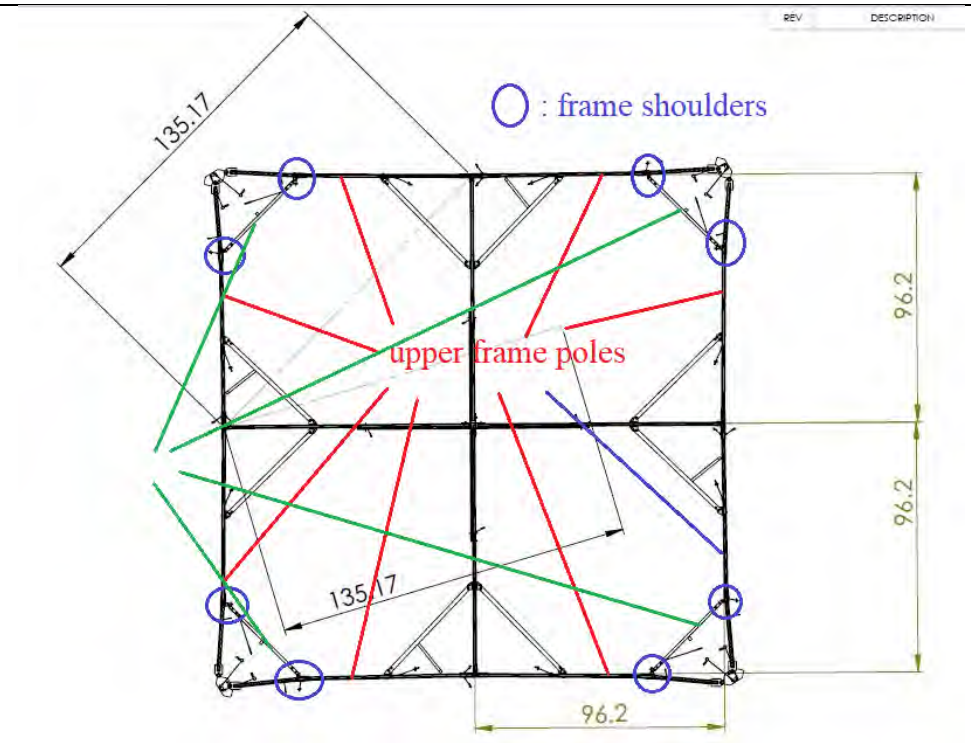
	 Photo X (Photos AA, V, W, Y and Z are similar) Shelters with the same side frame dimensions have been used for centuries.
16. The rapid-deployment shelter of claim 15 wherein the set of upper frame poles each terminate at frame shoulders that are separated by the shoulder support.	There is no data in the patent that show that it is a rapid-deployment shelter. Unless deployment time is compared to other shelters, this claim does not have much weight in my opinion as an engineer and professor. Sheets 1 and 2 show that the set of upper frame poles each terminate at frame shoulders that are separated by the shoulder support.



Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M (inside view), N, O, P, V, W, X, Y and Z show that the set of upper frame poles each terminate at frame shoulders that are separated by the shoulder support.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)



Photo AA (Photos Y and Z are similar)

Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.

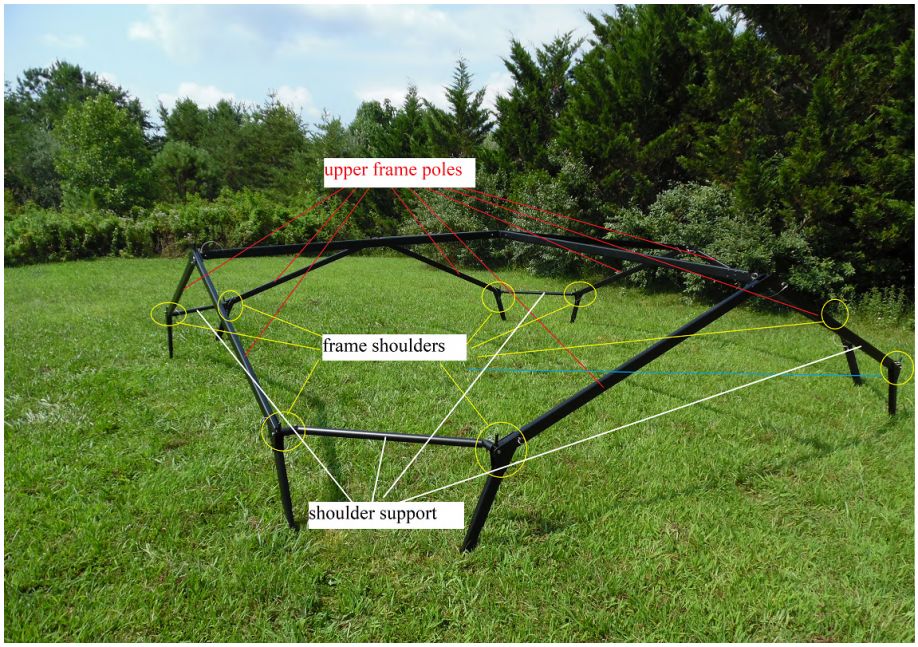
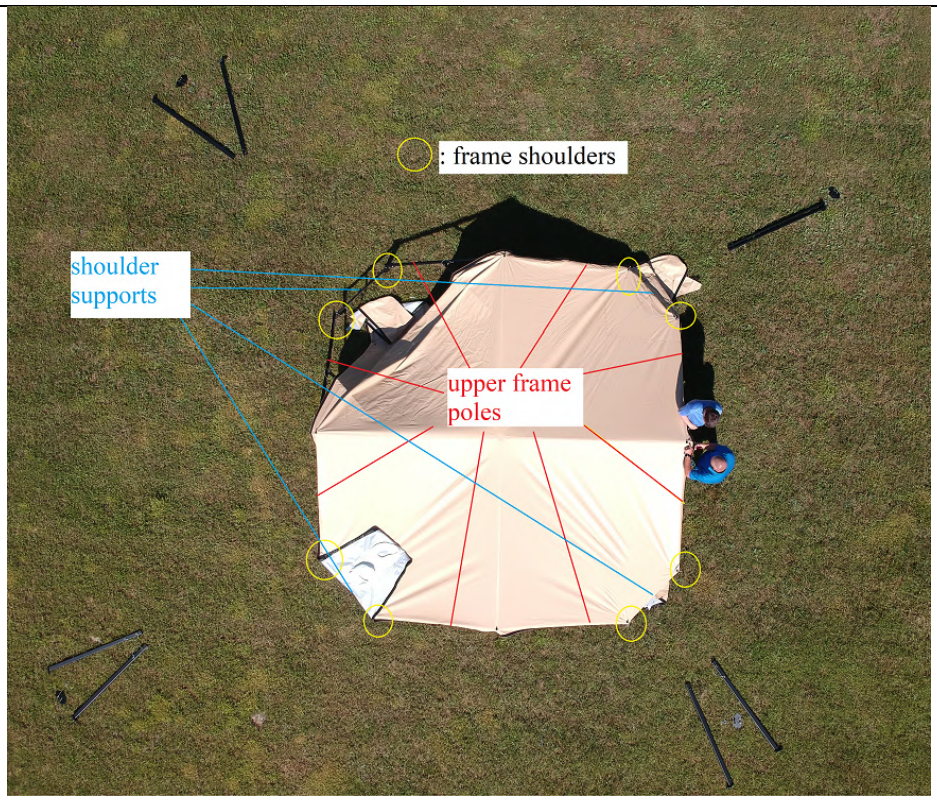
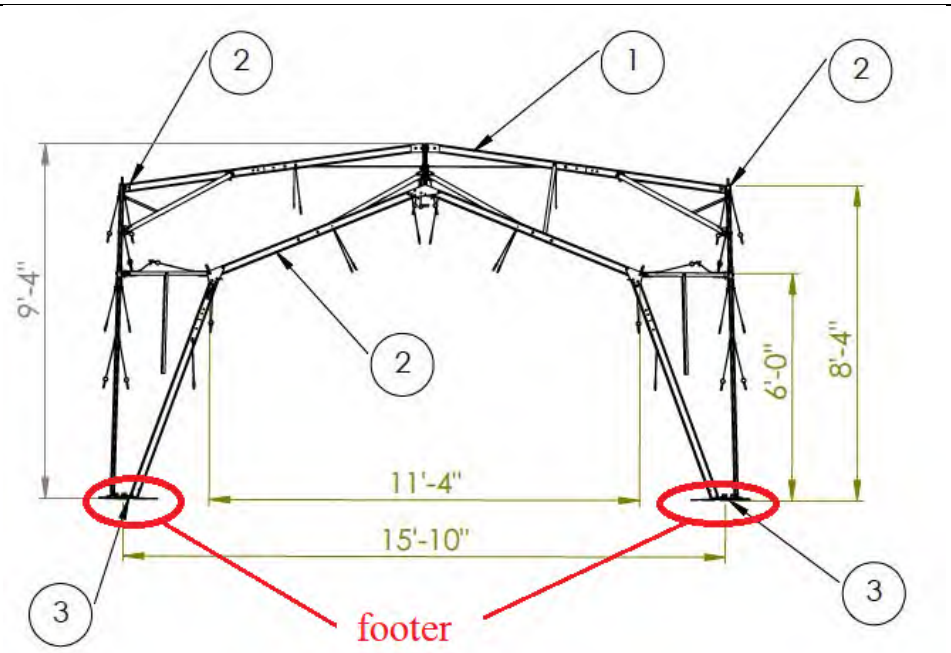


Photo C (Photos D, EE and P are similar)

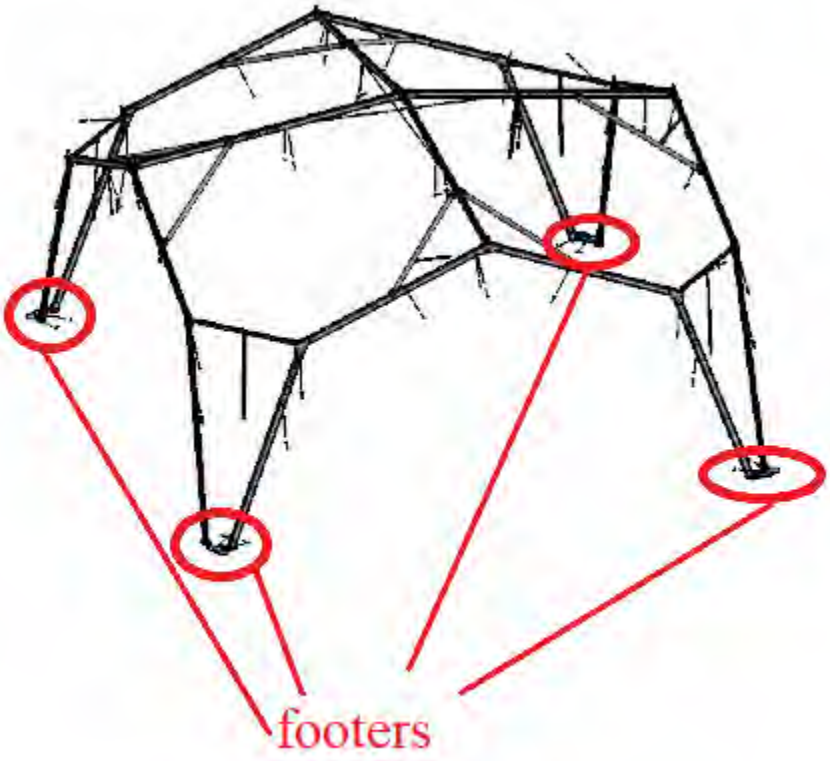


Photo M

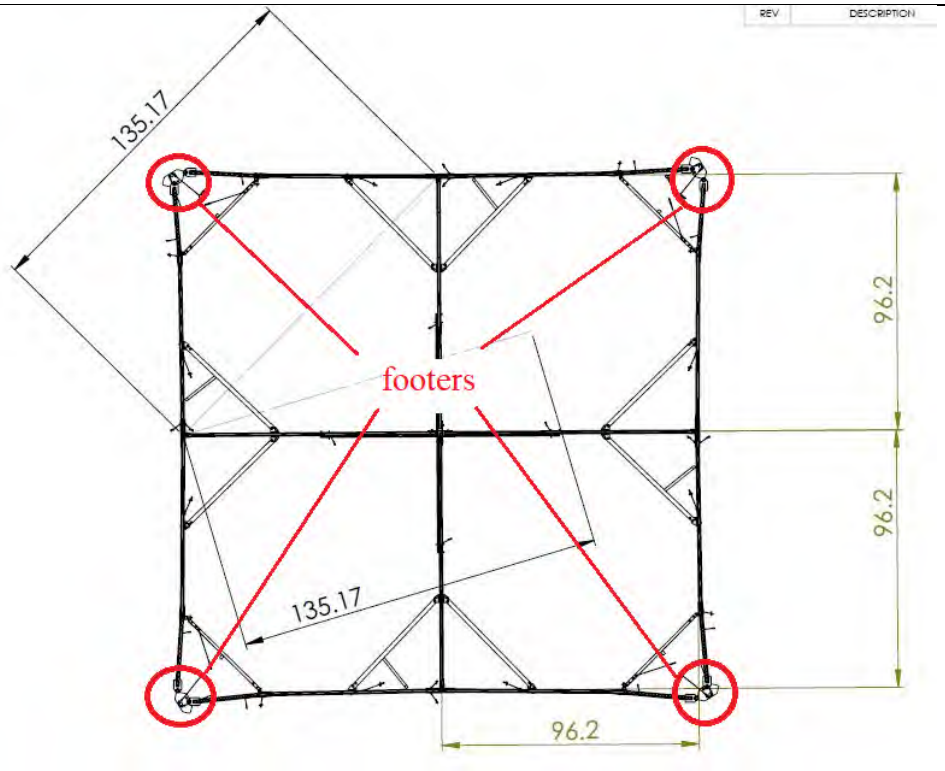
	 Photo V (Photos W and X are similar) Fabrics are highly flexible structures and cannot support themselves to form a three-dimensional structure without external support such frame poles and shoulder supports.
17. The rapid-deployment shelter of claim 16 including footers that mate one with another at a ground surface to secure the frame corner.	There is no data in the patent that show that it is a rapid-deployment shelter. In my opinion, to have a reasonable degree of scientific and engineering certainty that the shelter is a rapid deployment shelter, its deployment time needs to be compared to other shelters. Sheets 1 and 2 show footers that mate one with another at a ground surface to secure the frame corner.



Sheet 1-A



Sheet 1-B



Sheet 2

Photo G shows footers that mate one with another at a ground surface to secure the frame corner.



Photo G

Photos AA, T, U, V, W, X, Y and Z show the footers before they are assembled.



Photo AA (Photos Y and Z are similar)

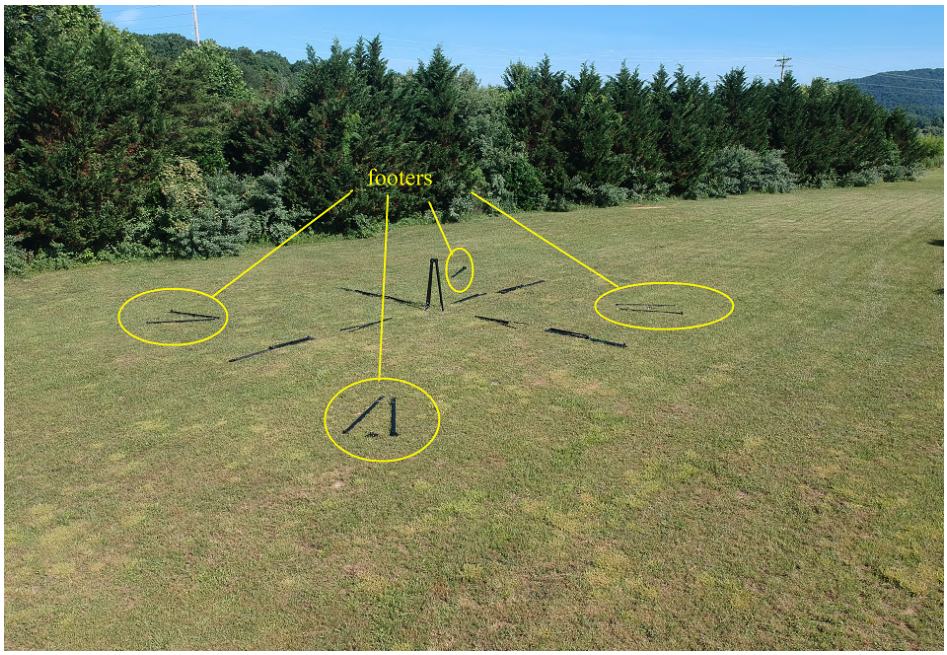


Photo T (Photos U, V, W and X are similar)

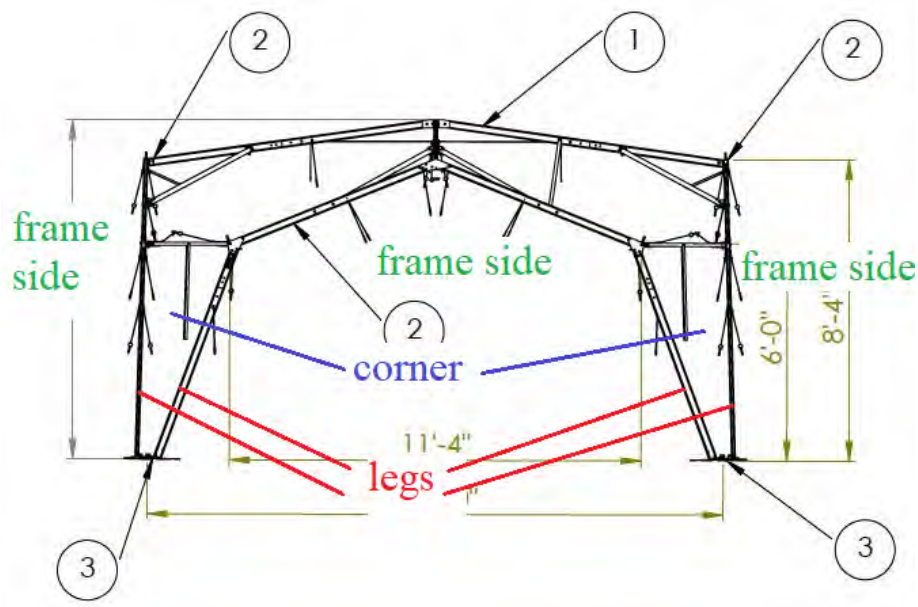
Photos A, B, BB, CC, DD, J, K, L, M (inside), N and O show footers that mate one with another at a ground surface to secure the frame corner after assembly of the shelter.

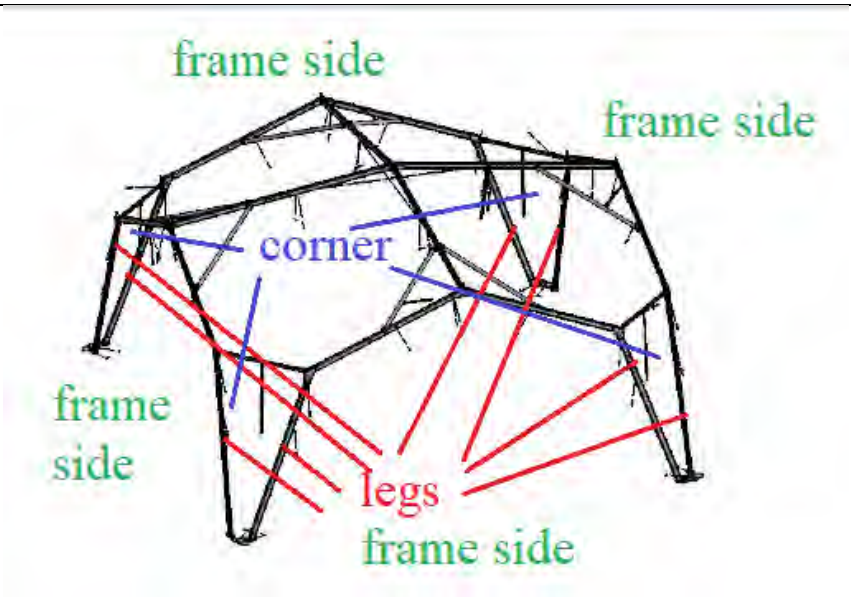


Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

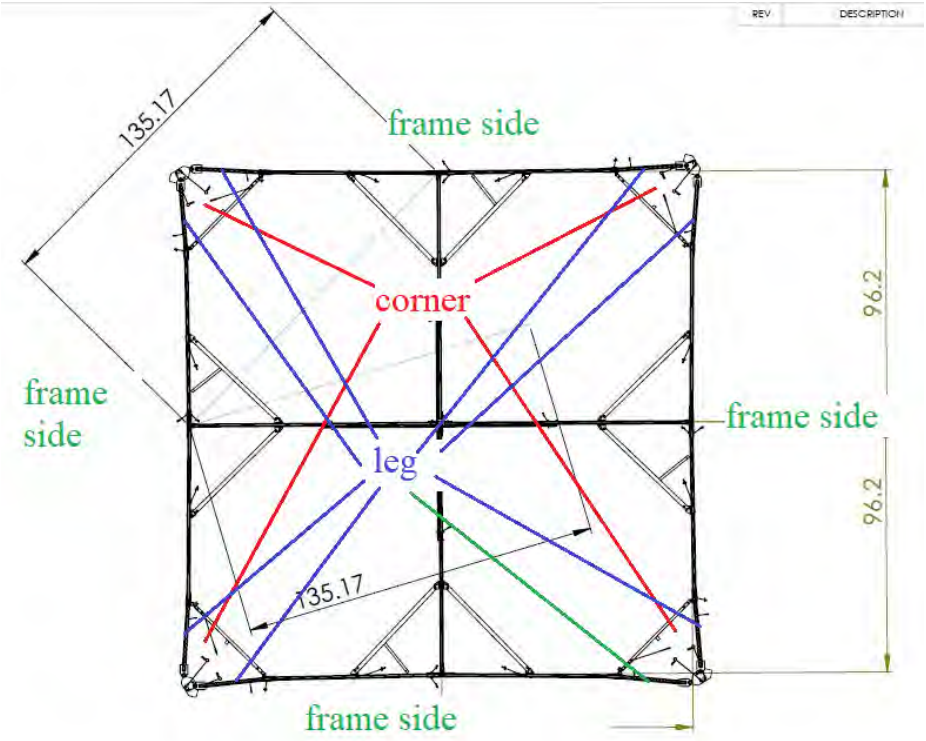


Photo M

	Footers have been used to secure the frames and frame corners to the ground for centuries. Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.
18. The rapid-deployment shelter of claim 17 wherein each corner includes a set of legs that supports one of the frame sides.	There is no data in the patent that show that it is a rapid-deployment shelter. In my opinion, to have a reasonable degree of scientific and engineering certainty that the shelter is a rapid deployment shelter, its deployment time needs to be compared to other shelters. Sheets 1 and 2 show that each corner includes a set of legs that supports one of the frame sides.  Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, AA, B, BB, C, CC, D, DD, EE, J, K, L, M (inside view), N, O, P, V, W, X, Y and Z show that each corner includes a set of legs that supports one of the frame sides.



Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

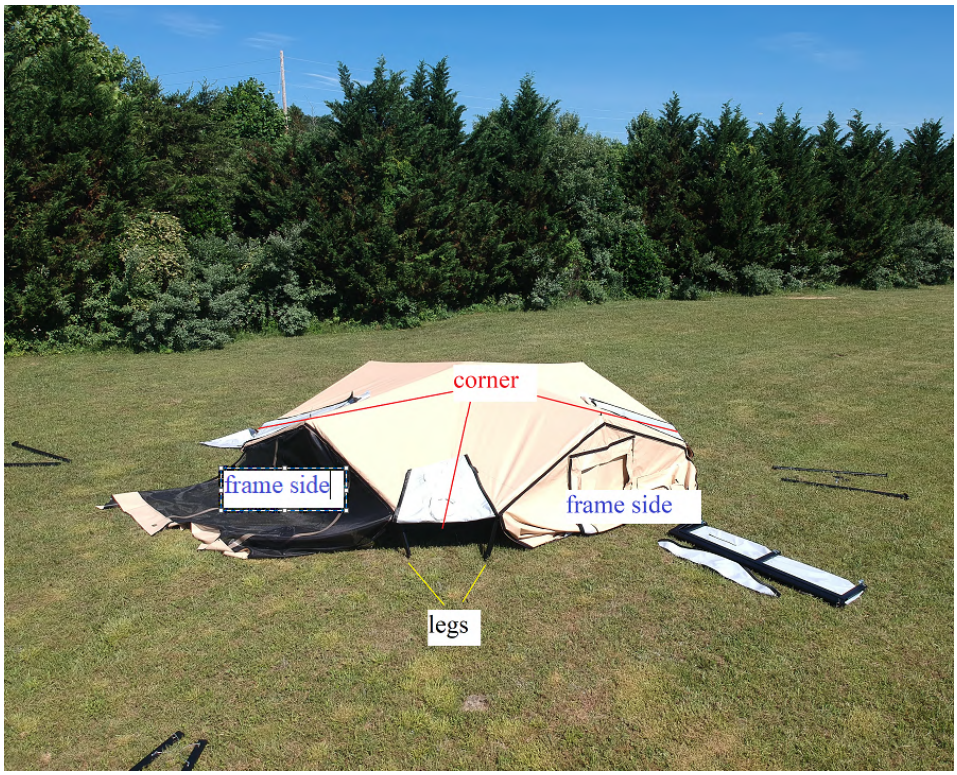


Photo AA (Photos Y and Z are similar)

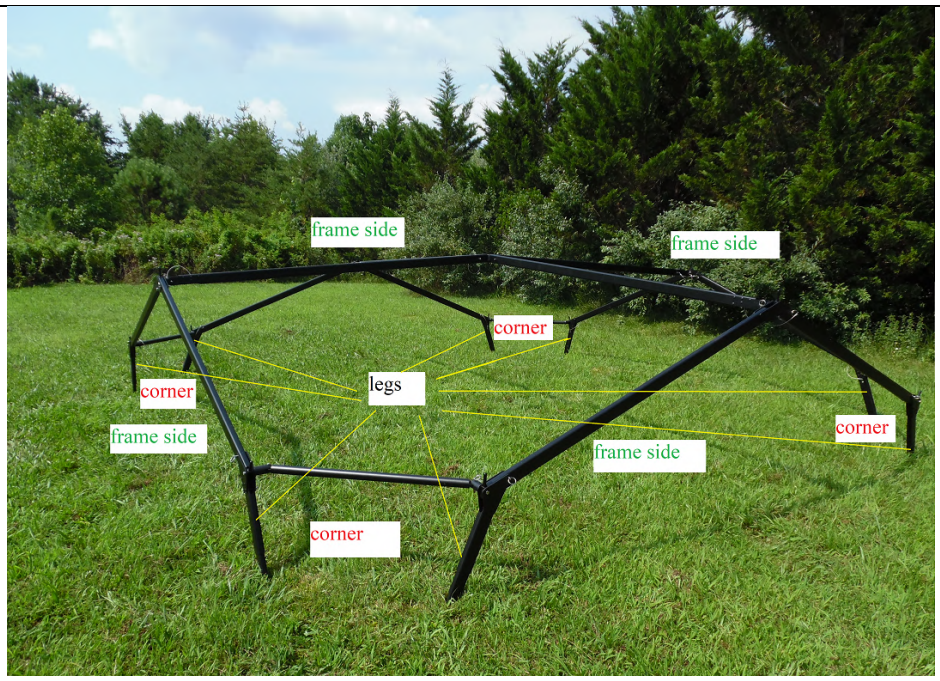
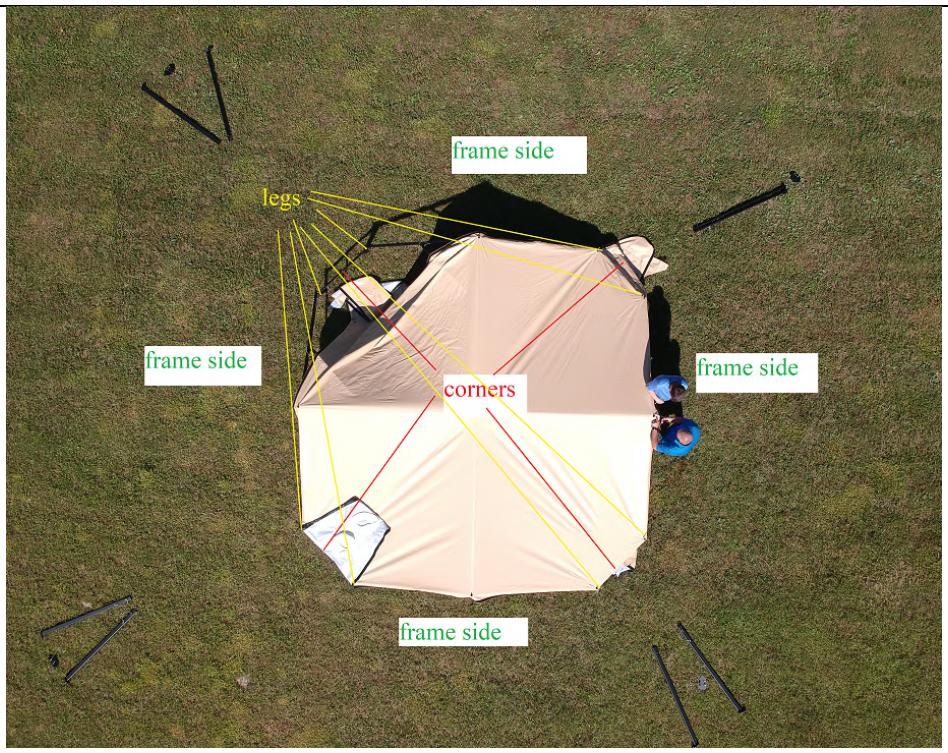
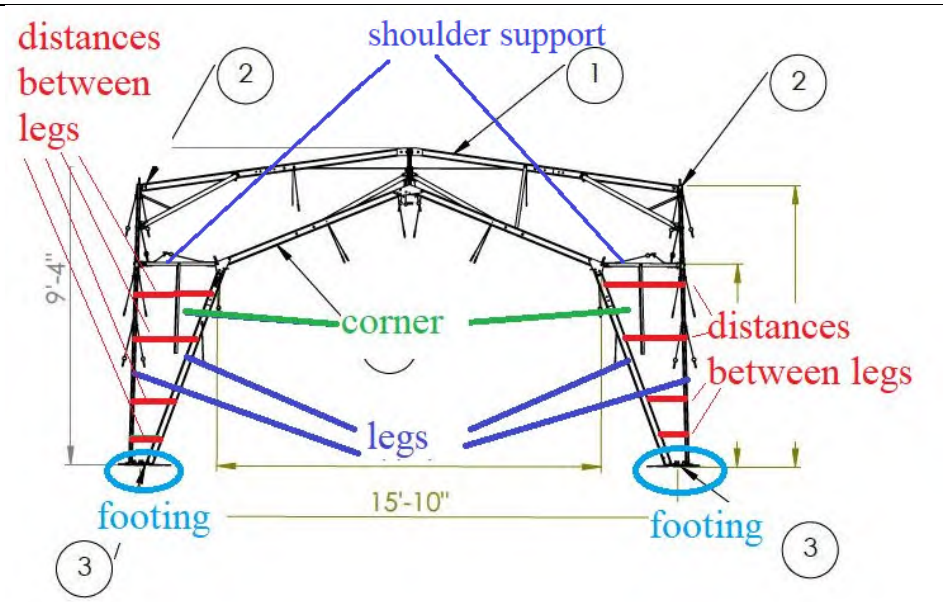


Photo C (Photos D, EE and P are similar)

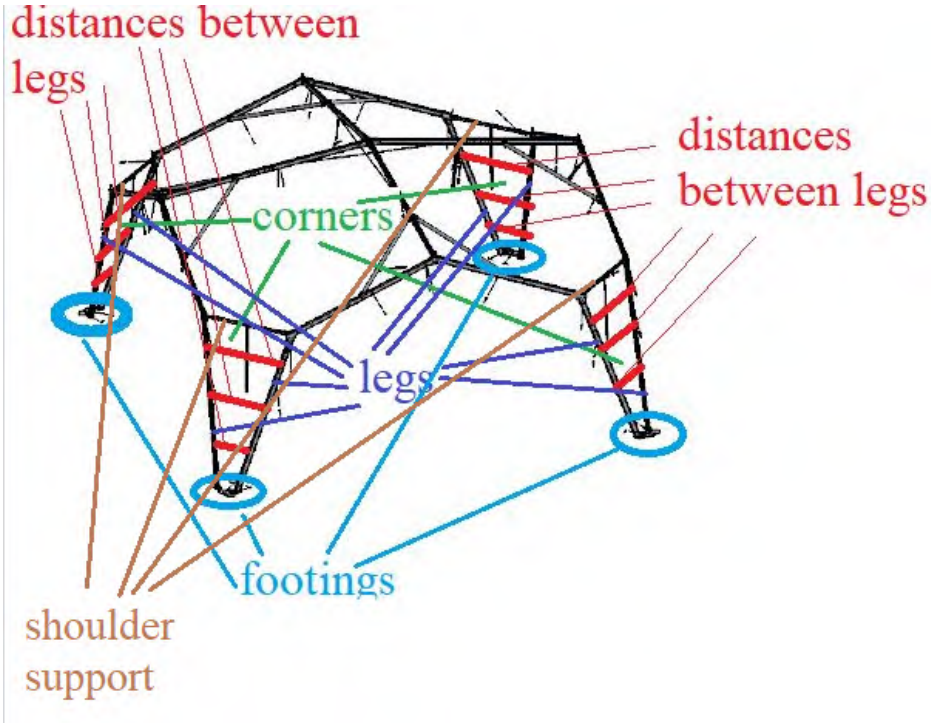


Photo (M)

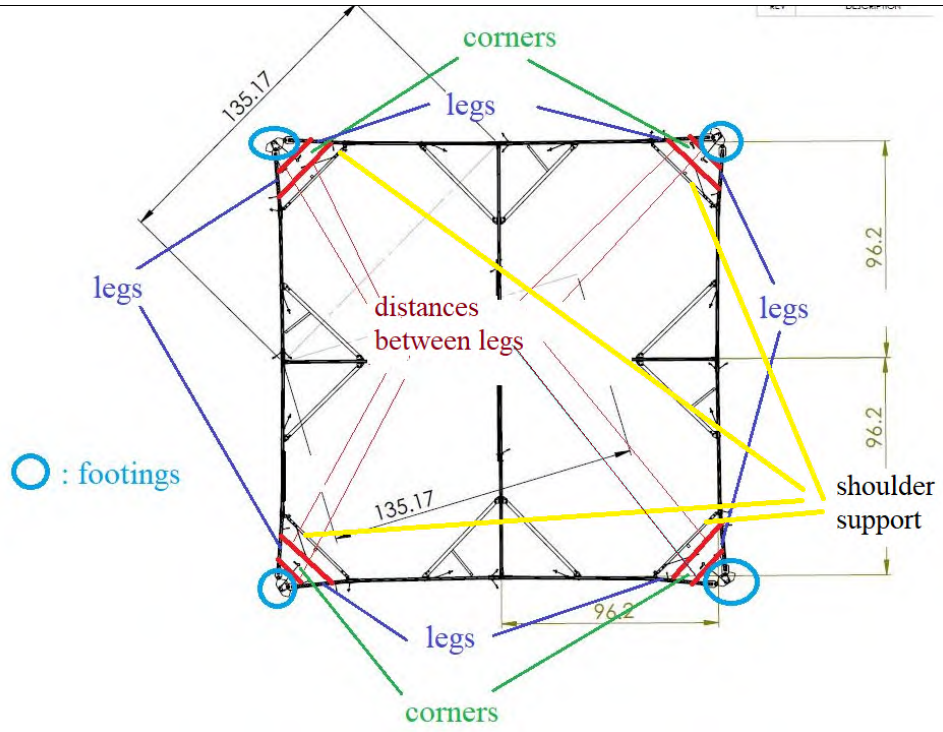
	 Photo V (Photos W and X are similar) Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects.
19. The rapid-deployment shelter of claim 18 wherein each of the set of legs define a distance that narrows between the shoulder support and a leg footing.	There is no data in the patent that show that it is a rapid-deployment shelter. In my opinion, to have a reasonable degree of scientific and engineering certainty that the shelter is a rapid deployment shelter, its deployment time needs to be compared to other shelters. Shelters have been used for centuries. Sheets 1 and 2 show that each set of legs define a distance that narrows between the shoulder support and a leg footing.



Sheet 1-A



Sheet 1-B



Sheet 2

Photos A, B, BB, C, CC, D, DD, EE, G, J, K, L, M (inside), N, O and P show that each set of legs defines a distance that narrows between the shoulder support and a leg footing.

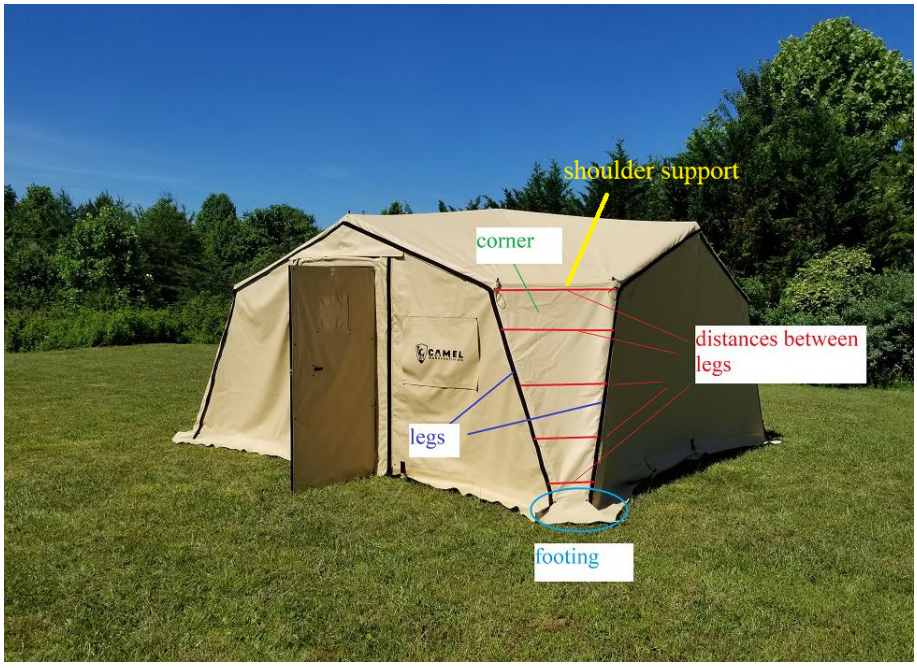


Photo A (Photos B, BB, CC, DD, J, K, L, N and O are similar)

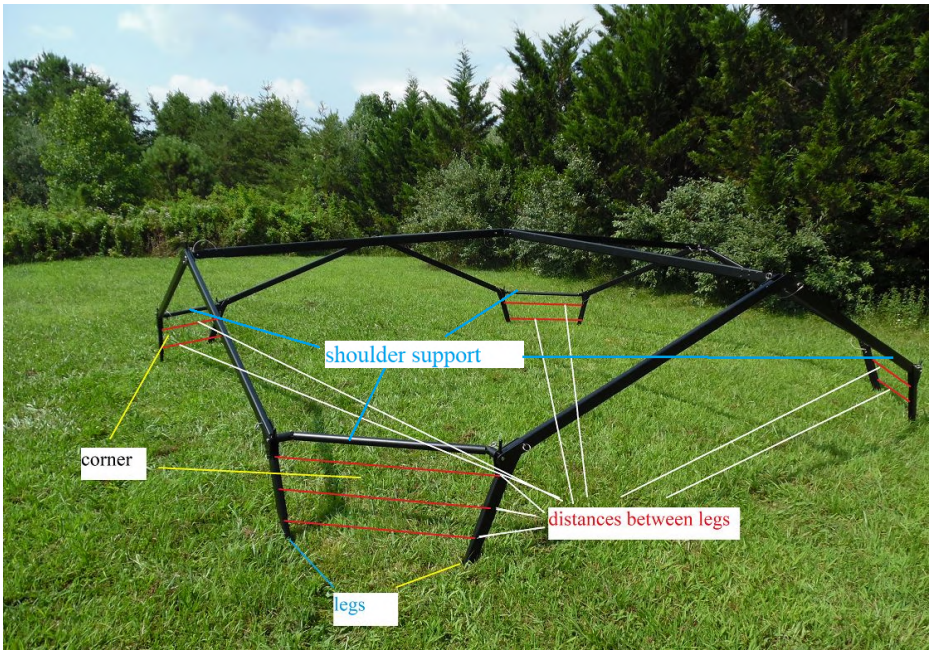
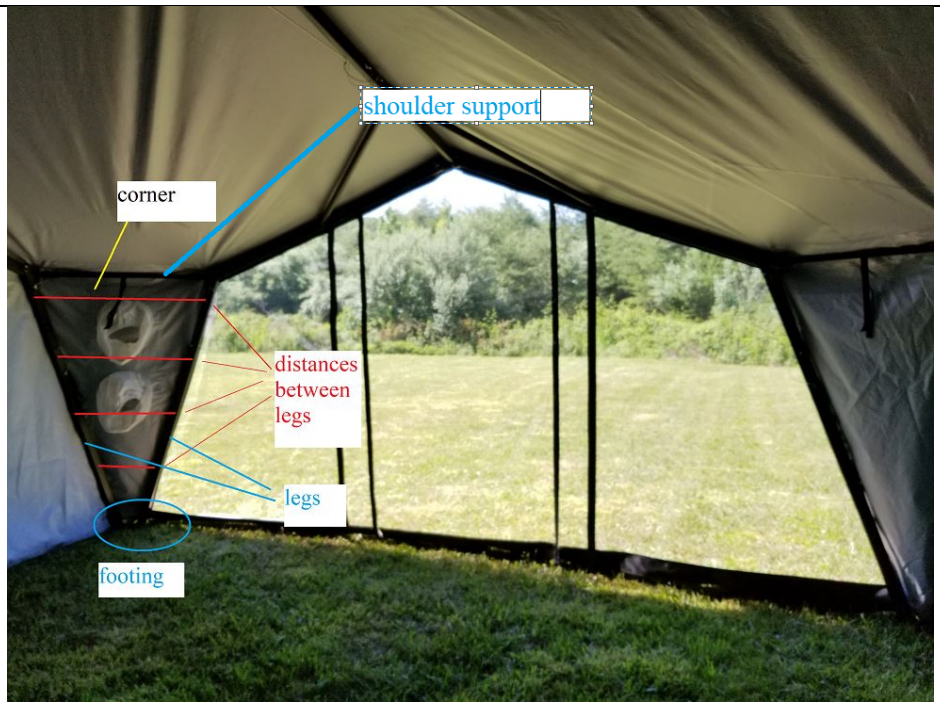


Photo C (Photos D, EE and P are similar)



Photo G

	 Photo M This design feature has been common in shelters over the centuries. Fabrics have been used for centuries to cover the shelter frames to provide security, protection, and privacy from outside effects. Fabrics are highly flexible structures and cannot support themselves to form a three-dimensional structure without external support such frame poles and shoulder supports.
20. The rapid-deployment shelter of claim 19 wherein the four-sided shelter frame is adapted to alternate	There is no data in the patent that show that it is a rapid-deployment shelter. In my opinion, to have a reasonable degree of scientific and engineering certainty that the shelter is a rapid deployment shelter, its deployment time needs to be compared to other shelters. Photos A, AA, B, J, K, L, N, O, V, W, X, Y and Z show a four-sided shelter frame that is adapted to alternate between a collapsible position and a deployed position.

between a collapsible position and a deployed position.	 Photo A (Photos B, J, K, L, N and O are similar)  Photo AA (Photos V, W, X, Y and Z are similar) This feature has been used for shelters over the centuries.

	Considering the low number of parts shown in photos AA, C, EE, P, T, U, V, W, X and Z, and in the 3 sheets of Drawing No. PHB-000-CMC, these shelter structures can be considered to be rapid-deployment hub shelter.

12. Every limitation of each claim of the ‘496 Patent is found in one or more of the photographs and drawings described above. With respect to each claim of the ‘496 Patent, every claim element is found in the finished tent product shown in one or more of the photographs and drawings described above. I am informed that those photographs and drawings predate the effective filing date of the claims of the ‘496 Patent. I conclude, therefore, that each invention defined by each claim of the ‘496 Patent was publicly known before the effective filing date of the ‘496 Patent..

13. I declare under penalty of perjury that each statement of opinion in this Report is made to a reasonable degree of scientific and engineering certainty and each statement of fact is true and correct.

Dated: _____, 2024

_____

Sabit Adanur, Ph.D.

	Considering the low number of parts shown in photos AA, C, EE, P, T, U, V, W, X and Z, and in the 3 sheets of Drawing No. PHB-000-CMC, these shelter structures can be considered to be rapid-deployment hub shelter.

12. Every limitation of each claim of the '496 Patent is found in one or more of the photographs and drawings described above. With respect to each claim of the '496 Patent, every claim element is found in the finished tent product shown in one or more of the photographs and drawings described above. I am informed that those photographs and drawings predate the effective filing date of the claims of the '496 Patent. I conclude, therefore, that each invention defined by each claim of the '496 Patent was publicly known before the effective filing date of the '496 Patent..

13. I declare under penalty of perjury that each statement of opinion in this Report is made to a reasonable degree of scientific and engineering certainty and each statement of fact is true and correct.

Dated: May 20, , 2024

Sabit Adanur, Ph.D.