C. LACOSTE.

METALLIC FRAMEWORK CONSTRUCTION.

APPLICATION FILED AUG. 11, 1913.

1,141,967.

Patented June 8, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

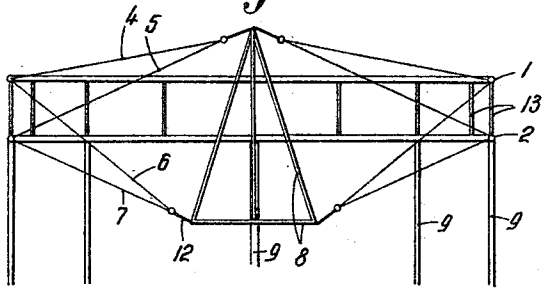


Fig. 2.

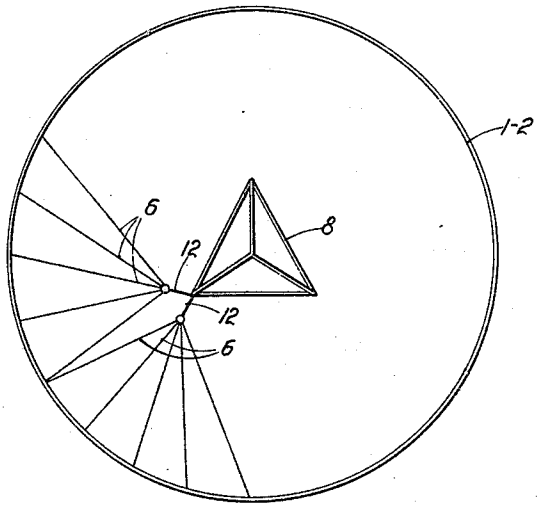


Fig. 3.

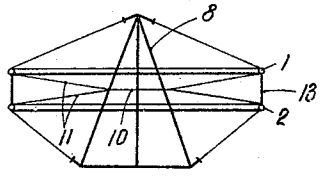
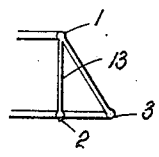


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

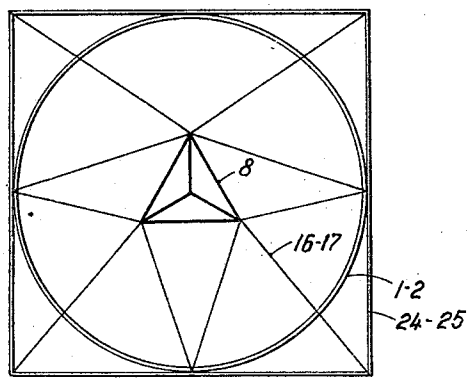


Fig. 8.

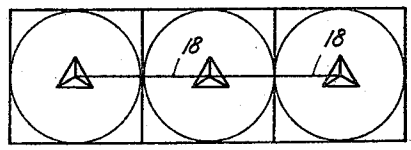


Fig. 9.

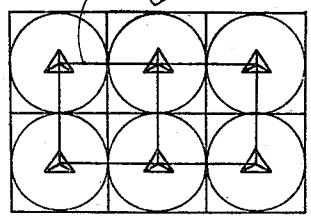


Fig. 6.

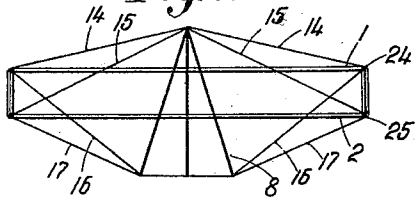


Fig. 7.

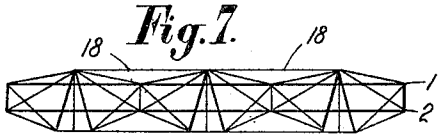
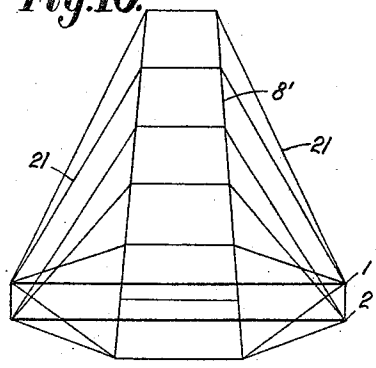


Fig. 10.



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CAMILLE LACOSTE, OF PARIS, FRANCE.

METALLIC FRAMEWORK CONSTRUCTION.

1,141,967. Specification of Letters Patent. Patented June 8, 1915.

Application filed August 11, 1913. Serial No. 784,217.

To all whom it may concern:

Be it known that I, CAMILLE LACOSTE, citizen of the French Republic, residing at Paris, Department of the Seine, in France, have invented certain new and useful Improvements in Metallic Framework Construction; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to metallic frame-work construction and has for its object to provide a light, but rigid and durable, metallic frame-work especially adapted for portable building structures.

The invention consists in providing a main supporting girder, preferably of circular form, connected to a central member by means of tie wires which serve to suspend said member centrally of the girder, which latter may be supported in relation to the ground in any suitable manner, as will hereinafter appear.

In the accompanying drawings, which illustrate the invention more or less diagrammatically, Figures 1 and 2 show in elevation and plan respectively, a construction embodying the invention; Fig. 3 is a side elevation showing a modification of the manner of securing the tie wires; Fig. 4 is a broken view in elevation showing a modified form of the circular girder; Figs. 5 and 6 illustrate in plan and elevation, respectively, the frame-work with an additional or auxiliary external frame surrounding the same; Figs. 7 and 8 illustrate in elevation and plan, respectively, a plurality of frame-work units disposed end to end; Fig. 9 is a plan view showing a construction formed by connecting adjacent units in a longitudinal and in a lateral direction; Fig. 10 illustrates in elevation, a modified form of framework unit.

Referring to the construction shown in Figs. 1 and 2, the main supporting girder of the frame-work comprises two circular rings 1 and 2 of any desired material, such as wood, or metal, rigidly spaced apart by the vertical spacers or struts 13. At the center of the circular girder, a strut member 8 is suspended, which may be of any desired shape, but, as shown in the drawing, is preferably tetrahedral in shape. The apices of the member 8 are connected to the two girder elements 1 and 2, preferably by means of four sets of tie wires, 4, 5, 6 and 7. As will be noted from the drawings, the member 8 projects materially above the upper and below the lower boundary planes of the circular girder, thus permitting the tie wires to make sufficient angle with the girder to produce a structure of great strength. By mounting the circular frame-work unit so formed upon a sufficient number of uprights 9, a skeleton structure is provided, the interior of which is unobstructed and entirely open and free. The roof may be formed by a covering applied directly to the upper set of wires 4, or by applying strips of wood, metal or any other material supported directly by the wires. The construction may be completed by strips of canvas, wood or the like, depending vertically from the upper portion of the frame to the ground.

In order to render the construction portable, it is preferable to construct the circular frame-work in a suitable number of detachable sections which may be connected by any suitable means, such as bolts and the like. The tie wires of the same section which converge to the same point of the central member are secured to a common support 12 provided with a regulating device, each wire being provided with its own tension regulator.

The first time the frame-work is assembled, the member 8 is placed in its central position and the circular girder is positioned by suitably regulating the tension of each wire.

To disassemble the frame-work, the support 12, which is common to the wires of one section, is made to release the same simultaneously without varying their individual adjustment. The frame-work is then disas-

sembled in such a manner as to leave all the wires of one group secured to the corresponding section of the central member.

It may be advisable in some cases to locate the connecting points of one or more of the sets of tie wires 11, Fig. 1, at points intermediate of the height or of the central member 8. These ties then still act to tensionally resist strain in the opposite direction from the other ties. In this case, in order to prevent the elements of the member 8 from bending, the adjacent elements may be connected by a tie member 10 disposed in the same plane with the connecting points.

When the frame-work units are employed for structures of relatively large size, for instance those exceeding 7 or 8 meters, circular girders of a more rigid type than those heretofore described may be employed. These may be formed by a plurality of braced circular elements 1, 2 and 3, Fig. 4, so as to obtain a reinforced girder structure of triangular section. For structures of large sizes, the unit is preferably reinforced by means of an external, polygonal frame, Figs. 5 and 6, formed by girder elements 24 and 25, interconnected to form, in the present instance, a rectangular girder frame, the sides of which are tangent to the inner circular girder. The external girder frame may be connected at its corners to the ends of the central member 8 by means of the tie wires 14, 15, 16 and 17. If it is desired to protect the interior of the structures built on these frame-work units from rapid variations in temperature, the sets of wires may be advantageously used for securing thereto a covering of canvas, wood or the like, to form an insulating air chamber. In the construction shown in Figs. 5 and 6, for instance, one covering may be applied to the upper tie wires 14 of the external frame, and a second covering to the tie wires 17. A covering may also be applied to the lateral faces of the external frame and to the periphery of the circular girder, thus providing an air chamber at the periphery of the frame-work unit as well as at the upper part thereof.

The units constructed in accordance with the foregoing may be grouped in any manner to form a structure of the desired shape. Figs. 7 and 8 show the units connected at their external rectangular frames in a row, so as to constitute an elongated structure. The external frames are bolted together, and the apices of the central members 8 are connected by the wires 18 which interconnect the units. As shown in Fig. 9, the units may be formed into rows, and the rows thus formed juxtaposed and interconnected by the wires 18.

Fig. 10 illustrates a modified form of the frame-work unit in which a central member 8′ is employed of much greater length than the central member described in connection with the other figures. In this form of the framework unit, the central member 8′ may be connected at various points throughout its length with the rings 1 and 2 of the circular girder by means of the tie wires 21.

Obviously many changes may be made in the details of the construction as above described, without departing from the spirit or scope of the invention, as defined in the accompanying claims.

What I claim is:—

1. A light truss or skeleton frame for building structures comprising a circular girder made of vertically rigidly spaced rings, a central skeleton strut projecting materially both above the upper and below the lower boundary planes of the circular girder and itself comprising an open truss providing both vertical and horizontal rigidity, ties connecting the upper and lower ends of said strut to the upper and lower rings of the girder, and further ties connecting the upper and lower rings respectively to the truss to tensionally resist strain in the opposite direction from the first-mentioned ties.

2. A light truss or skeleton frame for building structures comprising a circular girder made of vertically rigidly spaced rings, a central skeleton strut projecting materially both above the upper and below the lower boundary planes of the circular girder and itself comprising an open truss providing both vertical and horizontal rigidity, and ties connecting each end of said strut to both the upper and lower rings of the girder.

3. A light truss or skeleton frame for building structures comprising a polygonal frame made of girders secured together at their ends to form a polygon and comprising upper and lower members and struts, each such frame inclosing a circular girder made of vertically rigidly spaced rings, a central tetrahedral skeleton strut projecting materially both above the upper and below the lower boundary planes of the circular girder and itself comprising an open truss providing both vertical and horizontal rigidity, ties connecting each end of said strut to both the upper and the lower rings of the girder, and other ties connecting the corners of the polygonal girder-frame to the ends of the central strut.

4. A light truss or skeleton frame for building structures comprising a series of polygonal frames arranged in a common plane and made of girders secured together at their ends to form a polygon and comprising upper and lower members and

struts, each such frame inclosing a circular girder made of vertically rigidly spaced rings, a central skeleton strut projecting materially both above the upper and below the lower boundary planes of the circular girder and itself comprising an open truss providing both vertical and horizontal rigidity, ties connecting each end of said strut to both the upper and the lower rings of the girder, ties connecting the corners of the polygonal girder frame to the ends of the central strut, and further ties connecting the ends of the skeleton struts of the individual girders to one another at both ends.

In testimony whereof I affix my signature, in presence of two witnesses.

CAMILLE LACOSTE.

Witnesses:
HANSON C. COXE,
LOUIS JOSSE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."