

Sept. 30, 1941.

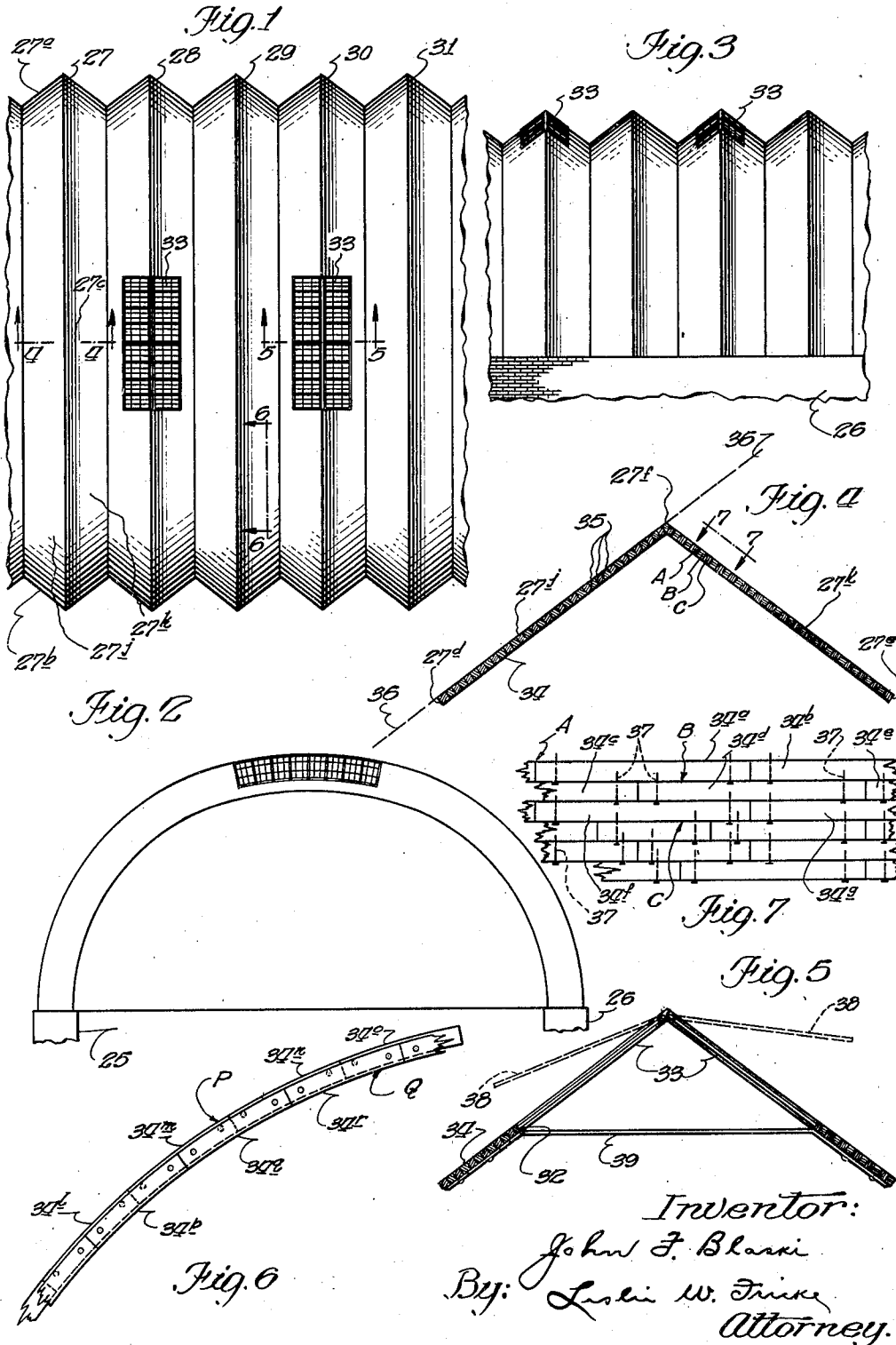
J. F. BLASKI

2,257,153

TRUSSLESS ROOF

Filed Oct. 17, 1940

3 Sheets-Sheet 1



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Sept. 30, 1941.

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3 Sheets-Sheet 2

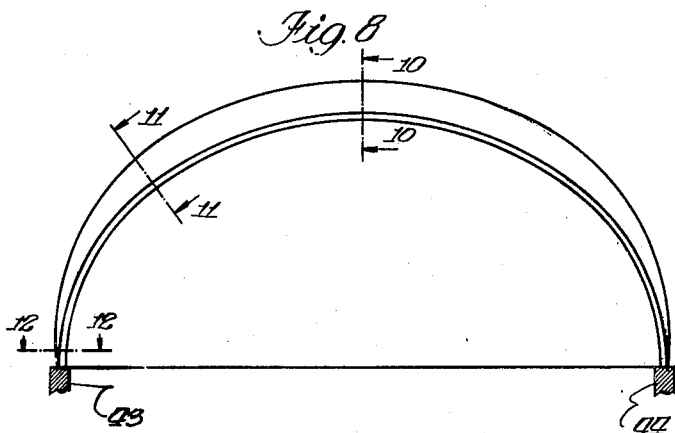
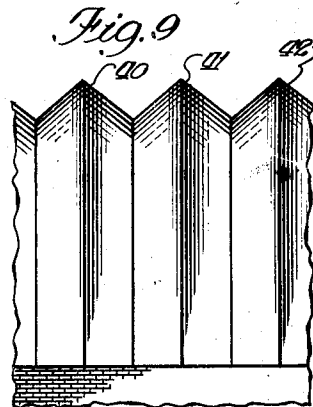


Fig. 10

Fig. 11

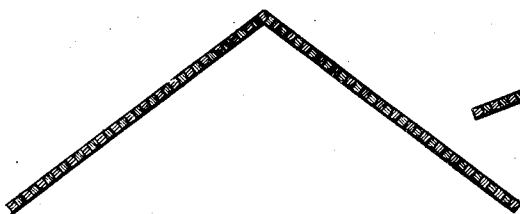


Fig. 12



Fig. 13

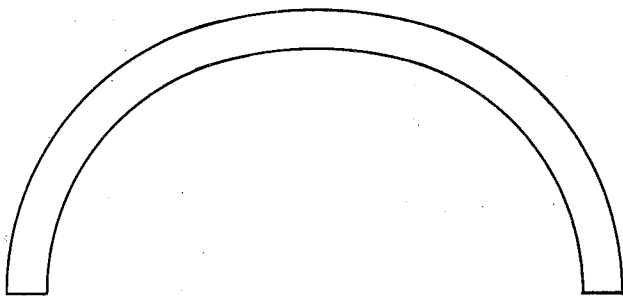
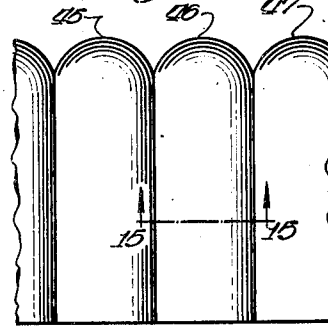


Fig. 14



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Fig. 15

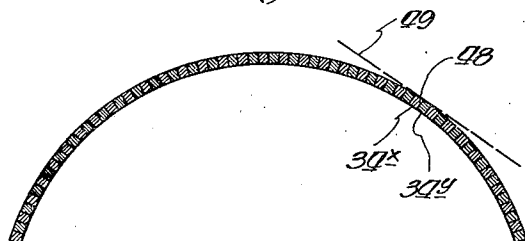


Fig. 16

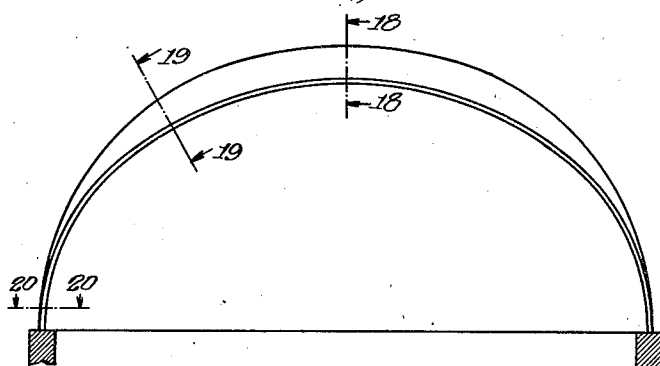


Fig. 17

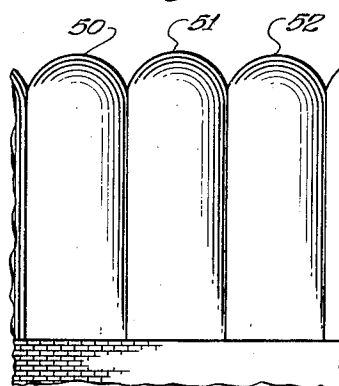


Fig. 18



Fig. 20



Fig. 19



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UNITED STATES PATENT OFFICE

2,257,153

TRUSSLESS ROOF

John F. Blaski, Chicago, Ill.

Application October 17, 1940, Serial No. 361,511

14 Claims. (Cl. 108—1)

My invention relates to an improved roof construction of the type which is arched between two side supports, ordinarily the side walls of a building.

It is an object of my invention to provide an improved roof construction of this type which is trussless and requires no supports, other than the supports on which it rests, either inside or outside the roof, for sustaining it.

It is also an object of my invention to provide an improved roof construction of this type which comprises a plurality of roof sections extending side by side transversely of the roof. It is contemplated that each of the roof sections shall be arched not only longitudinally thereof but also transversely thereof and shall not only be self-sustaining but shall give substantial bracing support to adjacent roof sections.

It is another object of my invention to provide an improved roof construction of this type which may be built with the use of inexpensive material and which may be easily assembled.

It is a further object of my invention to provide an improved roof construction of this type which is substantially smooth on both its inside and outside.

It is also an object of my invention to provide an improved roof construction of this type in which certain of the roof sections are provided with openings therein for skylights, and it is contemplated that the roof construction shall be such that it is not substantially weakened by such openings.

In its preferred form, my improved roof construction comprises a plurality of roof sections extending side by side transversely of the roof, each of the roof sections being arched transversely thereof and also lengthwise thereof between the side building supports, the roof sections each being formed by a plurality of courses extending lengthwise of the roof section, each of the courses being made up of building members laid end to end with the joints between the members non-coincident with the joints between the members of adjacent courses, and fastening elements for securing the building members of each course to the members of the adjacent courses.

The invention consists of the novel constructions and arrangements to be hereinafter described and claimed for carrying out the above stated objects and such other objects as will appear from the following description of certain preferred embodiments illustrated in the accompanying drawings, wherein—

Fig. 1 is a plan view of a portion of a roof construction embodying the principles of my invention;

Fig. 2 is an end elevational view thereof;

Fig. 3 is a side elevational view thereof;

Figs. 4, 5 and 6 are sectional views on an en-

larged scale taken on lines 4—4, 5—5 and 6—6 respectively of Fig. 1;

Fig. 7 is a plan view on an enlarged scale of a portion of the roof construction taken substantially from line 7—7 of Fig. 4;

Fig. 8 is an end view of a modification of my invention;

Fig. 9 is a side elevational view of a portion of the roof construction illustrated in Fig. 8;

Figs. 10, 11 and 12 are sectional views on an enlarged scale taken on lines 10—10, 11—11, and 12—12 respectively of Fig. 8;

Fig. 13 is an end elevational view of another modification of my invention;

Fig. 14 is a side elevational view of a portion of the roof construction illustrated in Fig. 13;

Fig. 15 is a sectional view on an enlarged scale taken on line 15—15 of Fig. 14;

Fig. 16 is an end elevational view of still another modification of my invention;

Fig. 17 is a side elevational view of a portion of the roof construction illustrated in Fig. 16; and

Figs. 18, 19 and 20 are sectional views on an enlarged scale taken on lines 18—18, 19—19, and 20—20 respectively of Fig. 16.

Like characters of reference designate like parts in the several views.

Referring to Figs. 1 to 7, it will be noted that the roof construction is in the form of an arch which extends between and is supported by opposite side building walls 25 and 26. The roof comprises a plurality of roof sections 27, 28, 29, 30 and 31 which extend side by side transversely of the roof and between the side supporting walls. Each of the roof sections, see Fig. 2, is arched lengthwise thereof upwardly from its ends toward its center and each of the sections, see Figs. 4 and 5, is also arched crosswise thereof from its sides toward its center. The roof section 27, for example, is arched upwardly lengthwise thereof from its ends 27a and 27b resting on the supports 25 and 26 toward its center 27c on the transverse center line of the roof section, and on the longitudinal center line of the roof, see Fig. 4, and the section 27 is arched upwardly crosswise thereof from its sides 27d and 27e to its center 27f on the longitudinal center line of the section. Each of the roof sections is substantially uniform in cross section from end to end, substantially as shown in Fig. 4, except for openings 32 for skylights 33 in the alternate sections 28 and 30, as hereinafter described. Each of the roof sections is made up of two roof portions; for example the roof sections 27 comprises the roof portions 27j and 27k, which extend transversely of the roof and, as may be seen in Fig. 4, are substantially straight in cross section.

Each of the roof sections 27 to 31 is made up of a plurality of building members 34 placed

end to end in courses which extend lengthwise of the roof section. The roof section 27, for example, comprises the courses A, B and C and the roof section 29 comprises the courses P and Q. The course A, as may be seen in Fig. 7, comprises members 34a and 34b; the course B comprises members 34c, 34d and 34e; and the course C comprises members 34f and 34g. The course P, as may be seen in Fig. 6, comprises members 34l, 34m, 34n, and 34o, and the course Q comprises 34p, 34q and 34r. The members 34 in each of the courses are disposed in face to face contact with the members in adjacent courses and with the joints between the members non-coincident with respect to the joints between the members in adjacent courses. For example, the members 34a and 34b in course A are in face to face contact with the members 34c, 34d, and 34e in course B, and the joints between the members 34a and 34b are non-coincident with the joints between the members 34c, 34d, and 34e. Each of the building members in each of the courses in the roof construction is disposed with its faces which make contact with the members in adjacent courses substantially at right angles to the pitch line of the roof at the member. The faces 35 of certain of the building members 34, as seen in Fig. 4 for example, are disposed at right angles to the line 36 which is the pitch line of the roof portion 27j.

The building members 34 are of wood or other suitable material. The building members are each preferably curved lengthwise thereof, see Fig. 6, and may be of various or random lengths. The building members in each course are attached to adjacent members in adjacent courses by suitable fastening elements, such as spikes 37. Each of the building members is preferably attached to the adjacent members in adjacent courses by at least two spikes, thereby joining the members into a strong network.

Certain adjacent courses of the building members in the central regions of the alternate sections 28 and 30 are discontinuous whereby the openings 32 are provided for the skylights 33. The skylights may be of the ordinary type having sides 38 which swing upwardly for ventilation. Bracing members 39 in the form of metal bars are preferably provided, see Fig. 5, which are secured to and extend from one side to the other of the roof sections for strengthening the roof sections.

The embodiment shown in Figs. 8 to 12 is similar to that shown in Figs. 1 to 7, except that each of the roof sections 40, 41 and 42 of the construction, which are substantially identical, is not uniform in cross section from end to end but varies in height from a maximum at the center to a substantially zero height at the ends of the section. As illustrated in Fig. 12, this modified construction at its sides extends along the roof supports 43 and 44 in substantially straight lines.

The construction illustrated in Figs. 13, 14 and 15 is similar to the embodiments described above except that the roof sections 45, 46 and 47 are curved in cross section. Each section is of substantially uniform transverse cross section from end to end, see Fig. 15. In this embodiment also the contacting side faces of each member is substantially at right angles to the pitch line of the roof at the member. For example, the contacting faces of the members 34x and 34y designated at 48 are substantially at right angles to the pitch line 49 of the roof at the members.

The construction illustrated in Figs. 16 to 20

is similar to the embodiment illustrated in Figs. 13 to 15 except that the roof sections 50, 51 and 52 which are substantially identical in cross section are not uniform but are arched more and have a greater height near their centers than towards their ends. The roof sections in cross section at their ends have a substantially zero height and extend substantially in straight lines, see Figs. 16 and 20.

Each of my improved roof constructions comprises a plurality of roof sections extending side by side. Each section is arched not only lengthwise thereof by also crosswise thereof, and each section not only is self-sustaining but also acts to brace adjacent sections. The building members making up the roof sections have their contacting side faces disposed at right angles to the curve or pitch line of the roof at the respective members, and the spikes secure the members into a strong, rigid and self-supporting construction. Old or used lumber of variable length, or lumber which is too short for ordinary building purposes is well suited for the construction of my improved roofs, and the constructions, therefore, are inexpensive to build.

My improved roof constructions may be built by making each of the sections separately and then placing them on the supporting walls and fastening the sections together. The individual sections may be readily constructed by building them over suitable forms. The respective modified sections shown in Figs. 10 to 12 and 18 to 20 have cross sectional heights that decrease from the middle of the sections to the ends thereof; and the distance between the sides of the sections, over the surfaces thereof at their ends, is substantially less than that over the middle portions of the sections. The number of courses of building members of uniform cross sectional size at the ends of the sections, therefore, should be less than the number of courses at the middle of the section, if substantial spacing of the courses at the middles of the sections is to be avoided. In sections of this type, some of the courses of building members at points between the middle and the ends of the sections may be discontinued, or narrow building members may be used at the ends and relatively wide building members may be used toward the middles or centers of the sections.

Both the inside and outside of my improved constructions are quite smooth and free of projections. The exterior surface of the roof may be treated with asphalt or gravel or covered with shingles or roofing paper or otherwise treated to make it water-tight. The constructions are self-supporting; and, since no unsightly and expensive trusses are required on the inside, they are ideal for factories, skating rinks, etc. The constructions may be designed to have a modernistic and pleasing external appearance.

I do not intend to limit the invention to the details of construction shown and described except only insofar as certain of the appended claims may be specifically so limited, as it will be obvious that modifications may be made without departing from the principles of the invention.

I claim:

1. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses,

the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched lengthwise thereof upwardly from its ends toward its center.

2. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center along at least a portion of its length and being arched upwardly lengthwise thereof from its ends toward its center.

3. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides towards its center and being of substantially uniform cross section from end to end, said section being arched upwardly lengthwise thereof from its ends toward its center.

4. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center and being arched upwardly lengthwise thereof from its ends toward its center, the height of the roof section in cross section gradually decreasing from the center of the roof section toward its ends.

5. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of said section being in

face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof to form two roof portions which extend lengthwise of the section and in cross section are straight and slant upwardly to join in the middle region of the section, said section being arched upwardly lengthwise thereof from its ends toward its center.

6. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members in adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members in each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center and in cross section being in the form of a curve, said section being arched upwardly lengthwise thereof from its ends toward its center.

7. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members in adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members in each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof to form two roof portions which extend lengthwise of the section and in cross section are straight and slant upwardly to join in the middle region of the section, the height of the roof section in cross section decreasing gradually from the center of the roof section toward its ends, said section being arched upwardly lengthwise thereof from its ends toward its center.

8. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members in adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members in each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center and in cross section being in the form of a curve, the height of the roof section in cross section decreasing gradually from the center of the roof section

toward its ends, said section being arched upwardly lengthwise thereof from its ends toward its center.

9. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members in adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, fastening elements for securing the members in each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center along at least a portion of its length and being arched upwardly lengthwise thereof from its ends toward its center, a plurality of said courses adjacent each other and in the central region of the section being discontinuous to form an opening in the section for a skylight, and a plurality of braces extending between the opposite portions of the section at the sides of said opening.

10. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center along at least a portion of its length and being arched upwardly lengthwise thereof from its ends toward its center, each of said members in each of said courses being disposed with its faces in contact with the faces of the members in adjacent courses at right angles to the pitch line of the roof at the member.

11. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center and being of substantially uniform cross section from end to end, said section being arched upwardly lengthwise thereof from its ends toward its center, each of said members in each of said courses being disposed with its faces in contact with the faces of the members in adjacent courses at right angles to the pitch line of the roof at the member.

12. A trussless roof section comprising in combination a plurality of courses extending lengthwise thereof, each course comprising a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of said section being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of a roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, said section being arched upwardly crosswise thereof from its sides toward its center and being arched upwardly lengthwise thereof from its ends toward its center, the height of the roof section in cross section gradually decreasing from the center of the roof section toward its ends, each of said members in each of said courses being disposed with its faces in contact with the faces of the members in adjacent courses at right angles to the pitch line of the roof at the member.

13. A trussless roof comprising in combination a plurality of roof sections, each of said roof sections comprising a plurality of courses extending lengthwise thereof, each of said courses being formed by a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of each of said sections being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of the roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, each of said sections being arched upwardly crosswise thereof from its sides toward its center along at least a portion of its length and being arched lengthwise thereof upwardly from its ends toward its center, said sections extending side by side and in mutual bracing relation.

14. A trussless roof comprising in combination a plurality of roof sections, each of said roof sections comprising a plurality of courses extending lengthwise thereof, each of said courses being formed by a plurality of building members in end to end relation with the joints therebetween non-coincident with the joints between the members of adjacent courses, the adjacent courses of each of said sections being in face to face contact and collectively providing a continuous roof surface from one side to the other of the roof section, said surface constituting a substantial portion of the roof, and fastening elements for securing the members of each course to the members of the courses adjacent thereto in face to face contact, each of said sections being arched upwardly crosswise thereof from its sides toward its center along at least a portion of its length and being arched lengthwise thereof upwardly from its ends toward its center, each of said members in each of said courses being disposed with its faces in contact with the faces of the members in adjacent courses at right angles to the pitch line of the roof at the member, said sections extending side by side and in mutual bracing relation.

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