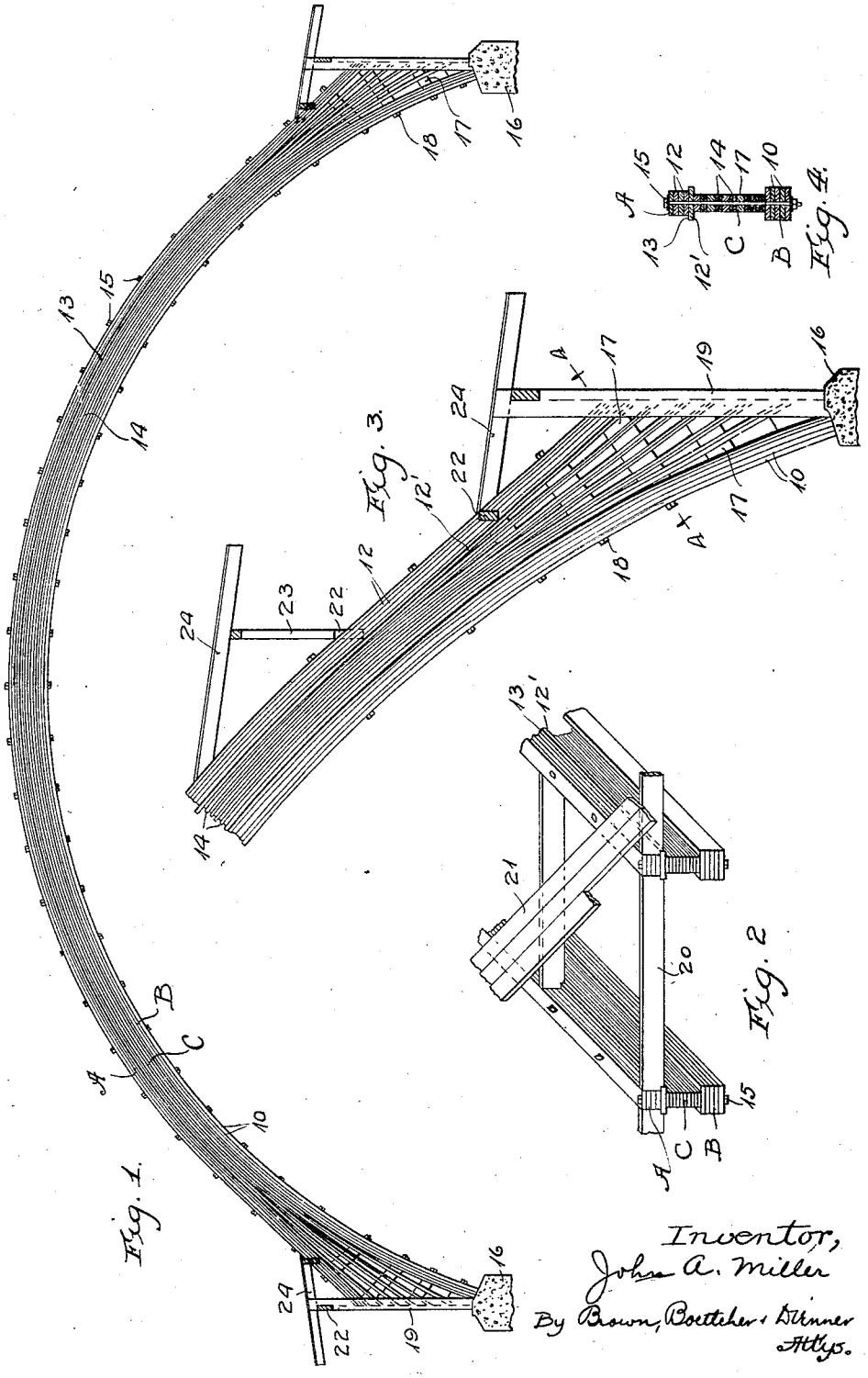
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ROOF STRUCTURE

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ROOF STRUCTURE.

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My invention relates to roof structures particularly adaptable and desirable over extended floor area, as for example, in dancing pavilions, skating pavilions, auditoriums, coliseums, garages, etc., where a floor of considerable area is to be covered and kept free from pillars, posts or other obstructions to sight or movement. My invention is particularly desirable in dome type of roofs. The important object is to produce improved truss structures built up entirely of stock lengths of boards, and improved interconnection between the roof purlins and the truss structures so as to form a smooth support to which the roof boards and roof covering may readily and efficiently be applied.

Another important object of the invention is improved and simple structure and arrangement for suitably strengthening the truss structures along their lower ends where they are subjected to the greatest strains.

The above and other features of my invention are incorporated in the structure shown on the drawing, in which—

Figure 1 is a side elevational view of the truss structure;

Figure 2 is a sectional view in adjacent truss structures showing the connection of the purlins therewith and the roof boards;

Figure 3 is an enlarged side elevational view of the lower ends of a truss structure, and

Figure 4 is a sectional view on plane 4—4, Figure 3.

The truss structure shown comprises the outer and inner arch parts A and B, and the web part C, the arch parts up to a short distance from the truss ends being parallel. The lower arch part is progressively built up of boards 10 to the desired height, the boards being held one against the other by nails, the boards breaking joint and overlapping. The upper arch part is formed in a similar manner of boards 12, the innermost board zone 12′ being slightly wider than the boards above in order to form supporting shoulders 13 for supporting the roof purlins as will be later described. The web part C is built up of boards or other stock lumber units 14 placed one on top of the other overlappingly and nailed together to be between the arch parts. The web part boards are narrower than the arch part boards to save stock and reduce the waste without, however, sacrificing the strength. For example, 2″ x 10″ boards could be used for the arch parts and 2″ x 4″ stock lumber for the web part, and 12″ boards for forming the purlin supporting zone 12′ with one inch wide ledges.

After the lumber units have all been bent to curvature and nailed together bolts 15 are inserted transversely through the arch and web parts securely clamping these parts together, the bent lumber units then retaining their curvature and the entire curvature of the truss being maintained. The grain in the units throughout the entire structure is longitudinally thereof which greatly increases the strength of the structure, and by securing the units rigidly together after putting them under flexure stress a rigid structure capable of sustaining heavy loads is produced.

As best shown in Figure 3, the inner arch part B has its ends continuously curved down to rest against the piers 16 preferably of stone or concrete. The upper arch part A and its end has the curvature changed, or straight, in order to diverge from the ends of the inner arch part so that the web structure height between the arch parts gradually increases. The web laminations 14 are regularly spread or fanned out either individually or in groups and spacer blocks 17 inserted at intervals between them, these spacer blocks appearing in transverse rows so that bolts 18 may be extended through the arch parts, web laminations and the blocks. Such diverging or fanning out of the web part laminations and the arch parts together with the blocks, all securely bolted together, produces very strong and rigid end sections for the truss structure and the entire truss structure is of increased stability and strength. The outer ends of the arch and web part laminations may be received and secured in pillar structures 19 which rest on the foundation piers 16 and which also serve to support the outer walls of the structure to be roofed over.

As best shown in Figure 2, the wider boards 12′ of the upper arch part provide the supporting shoulders or ledges 13 for the purlins 20 which rest at their ends on the ledges and are secured as by toe-nailing to the arch parts A with their upper edges flush with the top of the arch parts. Roof boards 21 are then arranged diagonally and nailed onto the arch parts and the purlins

and these roof boards assist in firmly securing the purlins and truss structures together, the roof boards supporting the shingling or other roofing material for withstanding the weather on the finished roof structure.

The ledges 13 are continuous down to the ends of the truss structure and may serve to support cross connecting supporting beams or structures 22 for supporting ventilating structures 23 and gables or auxiliary roof structures 24, or other additions.

I claim as follows:—

1. A truss comprising arch parts and a web part, said parts being formed of wood laminations extending longitudinally and nailed together, bolts extending transversely through said parts to secure them intimately together transversely throughout the major portion of the truss, the arch parts at the ends of the truss diverging gradually from each other and the web part laminations gradually separating, and spacer blocks secured between the separated laminations.

2. In a truss structure, the combination of outer and inner arch parts, a web part formed of wood laminations extending longitudinally, bolts extending transversely through said arch parts and web part to secure said parts together throughout the major portion of the truss structure, and arch parts diverging from each other at the ends of the truss structure, the web part laminations fanning out to separate from each other and from said arch parts, spacer members inserted in said separating spaces and arranged in transverse rows, and bolts extending through the arch parts and web laminations and said rows of spacer members for rigidly securing said members transversely together.

3. In a truss structure, the combination of an outer arch part and an inner arch part, a web part composed of longitudinally extending laminations spaced apart transversely between said arch parts, spacer members between said spaced laminations, said members being arranged in transverse tiers, and bolts extending through said arch parts, said laminations and said tiers of spacer members.

In witness whereof, I hereunto subscribe my name this 9th day of November, 1925.

JOHN A. MILLER.