

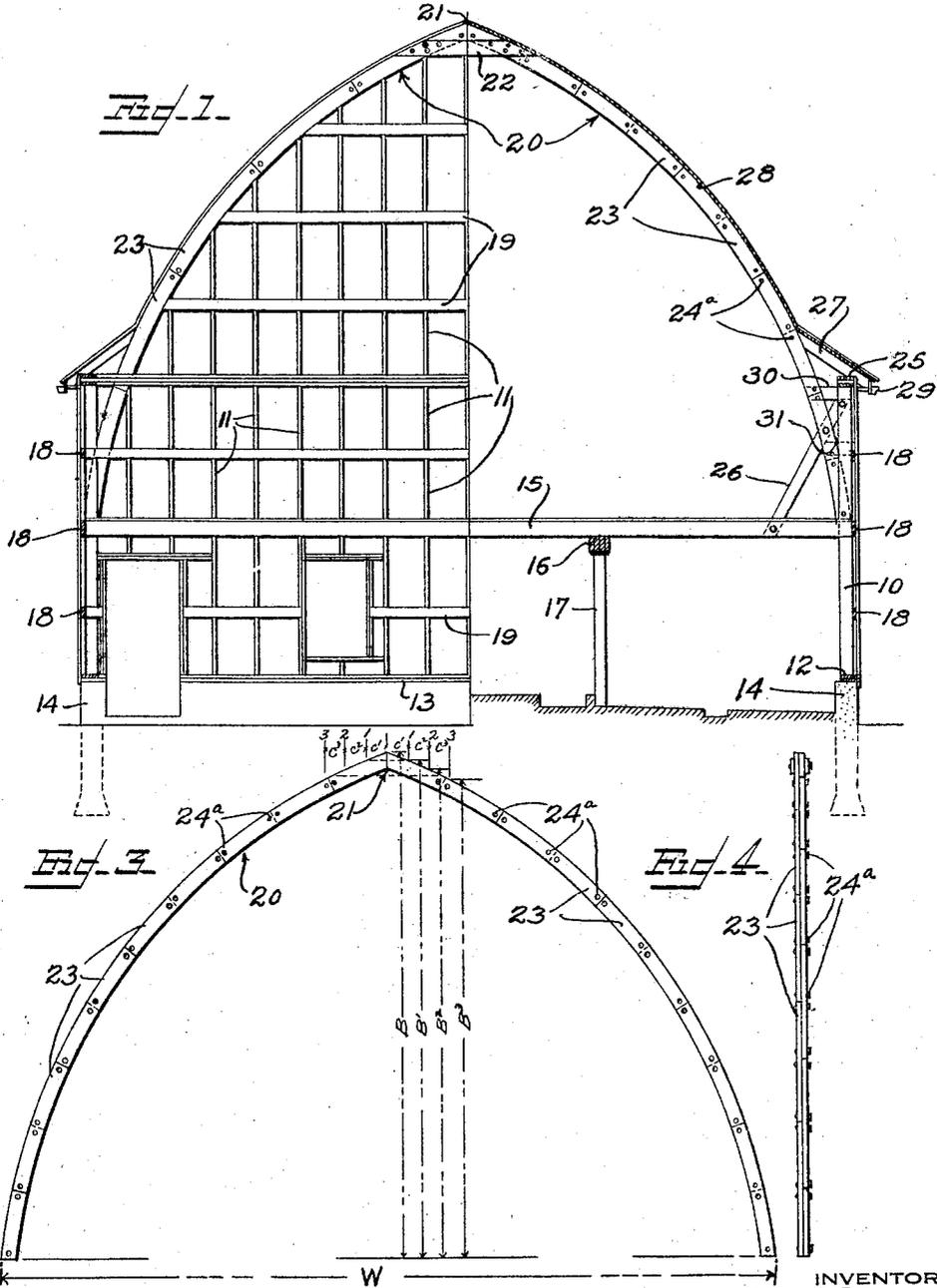
Feb. 10, 1925.

1,526,278

A. A. GILMORE
GOTHIC ROOF FOR BARN

Filed July 10, 1923

2 Sheets-Sheet 1



WITNESSES
Charles H. Curran
E. N. Lovewell

INVENTOR
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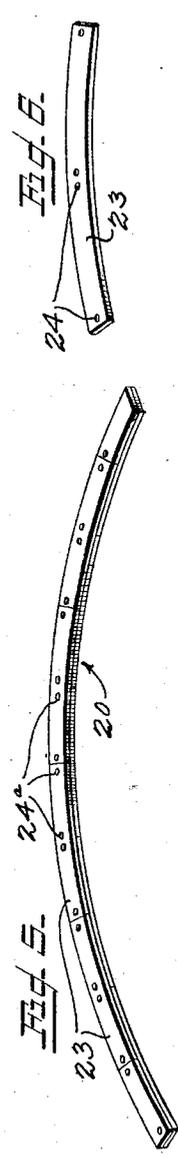
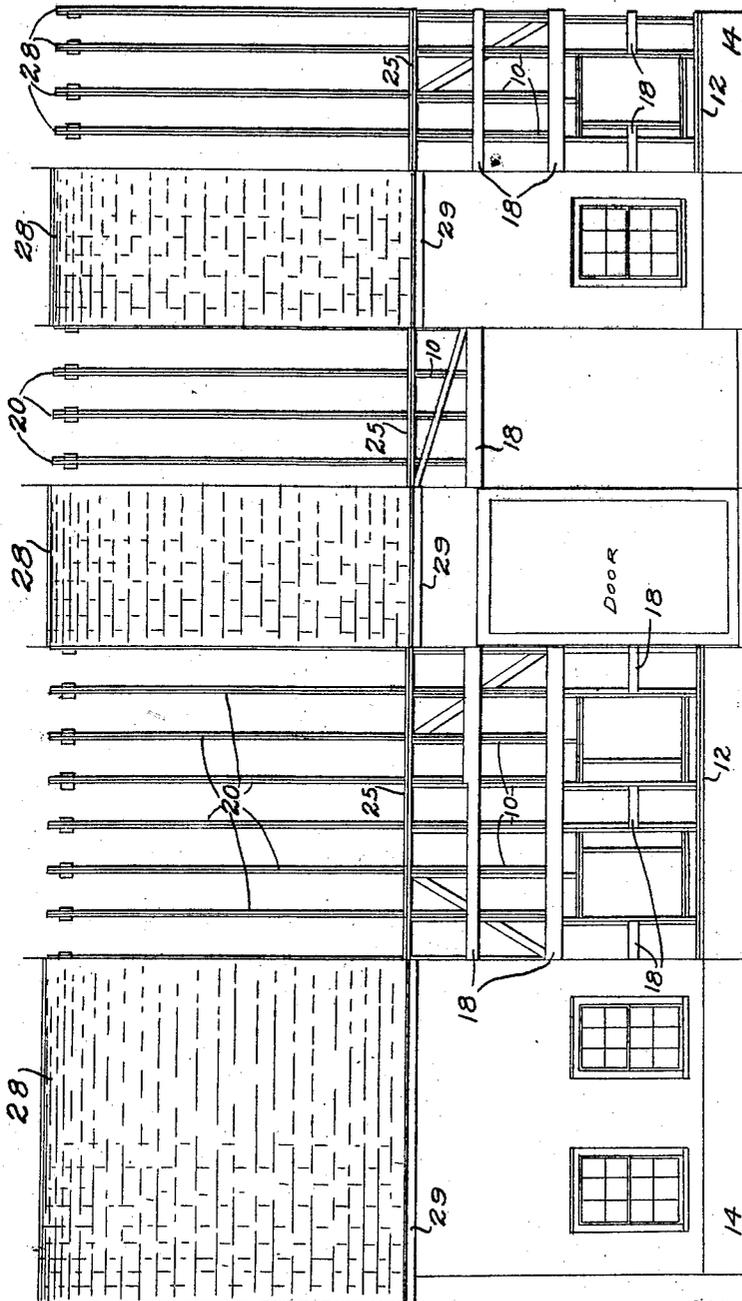
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UNITED STATES PATENT OFFICE.

ALFRED A. GILMORE, OF PRESTON, ONTARIO, CANADA.

GOTHIC ROOF FOR BARNs.

Application filed July 10, 1923. Serial No. 650,709.

To all whom it may concern:

Be it known that I, ALFRED A. GILMORE, a citizen of Canada, residing at Preston, in the Province of Ontario and Dominion of Canada, have invented a new and useful Gothic Roof for Barns, of which the following is a specification.

This invention relates to the construction of a roof which is particularly adapted for barns, and which is a modification of the type generally termed "Gothic."

The general object of the invention is to provide a construction for the roof which will be artistic in appearance, which will provide a maximum storage space for the ground area which the barn covers, and which will be of maximum strength for the amount of material used.

It is a special object of the invention to provide a construction by which roofs of any size may be built up from units carried in stock, so that the greater part of the cutting may be done at the mill, thus saving expense in transportation, as well as in the framing, and making it possible to complete the building with a minimum amount of labor.

It is also an object of the invention to provide improved means for securing and bracing the roof so as to leave the interior of the barn practically free of obstructions, without in any way weakening the structure.

The detailed construction by means of which the invention is carried out will be best understood from a consideration of the following description taken in connection with the accompanying drawings, which illustrate the invention in its preferred form.

In the drawings:

Figure 1 is an end view, half in section and half in elevation, of a barn constructed in accordance with the invention.

Figure 2 is a side elevation of the barn, showing portions of the same completed and other portions with merely the framing.

Figure 3 is a side elevation of a pair of rafters, illustrating the method of cutting the same for barns of different widths.

Figure 4 is a view looking from the right hand side of Figure 3.

Figure 5 is a perspective view of one of the rafters.

Figure 6 is a perspective of one of the units from which the rafters are built up.

The frame of the barn includes side studs

10 and end studs 11, suitably spaced and supported by sills 12 and 13, respectively, which rest on suitable foundations 14. At a suitable distance above the ground the studs 10, on opposite sides of the barn, are connected by tie-beams or joists 15, the intermediate portions of which rest on longitudinal girders 16, which are supported by posts 17. The side and end studs are connected by a series of girths 18 and 19, respectively, which support the siding.

The rafters 20, which are arcuate, extend from the ends of the joists 15 upwardly and inwardly and meet to form a ridge 21, the upper ends of each pair of rafters being connected by a short tie-bar 22. Each rafter is made up of a series of units 23 of uniform size and shape, and are uniformly bored at 24 to receive bolts 24^a for splicing the units together in overlapping relation, with the joints between the units staggered as shown in Figure 5. In this manner a rafter of any desired length may be built up from these units. The rafters are thus made of sufficient length to form an arch, as shown in Figures 1 and 3. Each arch is formed of two rafters with their bases coinciding with the side walls of the barn, and with their upper ends meeting at the apex 21 and joined by the tie bar 22. In Figure 3, the line B represents the total height of the roof, and the line W represents the total width. If it is desired to make the barn two feet narrower than shown, the upper ends of the rafters are cut off, as indicated at c' by vertical cuts, one foot in horizontal distance from the apex 21, thus making the height of the roof as indicated by the line B'. If a still narrower barn is desired, the upper ends of the rafters may be cut, as indicated at c² and c³, making the height of the roof as indicated at the lines B² and B³, respectively.

In order to brace the roof and secure the same rigidly to the main part of the frame, the studs 10 are extended some distance above the joists 15, and the upper ends connected to the lower portions of the rafters by side ties 30 and 31. The upper ends of certain of the studs 10 and the rafters 20 are also braced from the tie-beams 15 by braces 26, which are secured to each by bolts. It will be noted, however, that the side ties 30 and 31 rigidly connect the studs to the rafters, and consequently make it possible to omit the greater portion of the braces 26,

thus leaving the interior of the barn unob-
 5 structed except at intervals, which may run
 from six to twelve feet on centers. Short
 lookout rafters 27 rest on the wall plates 25
 and are inclined upwardly and inwardly,
 10 and secured at their upper ends to the
 rafters 20. Any suitable roofing, as indi-
 cated at 28, may be laid over the rafters 20
 and 27 extending down over the cornice 29,
 15 so as to form an artistic and serviceable
 roof.

It is to be understood that the rafters 20
 are all made up of standard pieces of mate-
 15 rial 23 cut to exactly the same radius, and
 all exactly the same length, built together
 to form arches. By cutting the upper ends
 of these rafters, as indicated, a roof of any
 desired width may be obtained having a
 20 proper slope to give it an artistic appear-
 ance, and suitably braced and finished as
 described to constitute a strong and durable
 construction.

Various Gothic roof structures have been
 heretofore proposed, some consisting of
 25 laminated pieces of boards, spliced together,
 but these have but little stability, and warp
 out of shape. Moreover it has been difficult
 for the carpenters to build up the same of
 the proper shape and size for the particular
 30 building being constructed; but with the
 standard units, built up and cut in the man-
 ner herein proposed all such labor and loss
 of time is eliminated.

While I have shown and described the
 35 specific features of the invention and the
 principles embodied therein, it will be un-
 derstood that various modifications may be
 made in the size and proportion of the parts
 and their relation to each other, such as is
 40 required by the particular construction in
 which it is to be used, without departing
 from the spirit of the invention.

What is claimed is:

1. In a barn, the combination of opposed
 45 series of side studs transversely connected
 by joists, arcuate rafters extending upwardly
 and inwardly from the ends of the joists
 and meeting at the apex of the roof, said
 50 studs being extended upwardly above the
 ends of the joists and their upper ends con-
 nected to each other by wall plates, ties con-
 necting the upper portions of the studs to
 the rafters, and lookout rafters resting on
 the wall plates and connected to the inter-
 55 mediate portions of the arcuate rafters.

2. In a barn, the combination of opposed
 series of side studs, a roof made of two op-
 60 positely sloping sides, each having arcuate
 rafters made up of sections of standard
 uniform size spliced together in overlapping
 relation, said rafters being supported with
 their lower ends intermediate the ends of

the respective studs, means for holding the
 studs and rafters against spreading, and
 comparatively short lookout rafters above
 65 the ends of the studs and joined to the inter-
 mediate portions of the arcuate rafters.

3. In a barn, the combination of a series
 of side studs, joists connecting the studs at
 a point between the top and bottom thereof,
 70 arcuate rafters extending upwardly and in-
 wardly from the studs where the joists are
 connected thereto, said rafters meeting at
 the apex of the roof, and inclined braces ex-
 tending from the upper ends of the studs to
 75 the joists and secured to and crossing the
 rafters at an intermediate point of their
 length.

4. In a barn, the combination of a series
 of studs arranged at each side of the barn,
 80 joists connecting the studs intermediate
 their ends, arcuate rafters extending up-
 wardly and inwardly from the studs where
 the joists are connected thereto, said rafters
 meeting at the apex of the roof, side ties
 85 connecting the upper portions of the studs
 to the rafters, and inclined braces interme-
 diately bolted to certain of the rafters and
 having their ends bolted to adjacent studs
 and joists respectively.

5. In a barn the combination of a series
 of studs arranged at each side of the barn,
 joists connecting the studs intermediate
 their ends, arcuate rafters extending up-
 95 wardly and inwardly from the studs where
 the joists are connected thereto, said rafters
 meeting at the apex of the roof, inclined
 braces connecting the upper ends of the studs
 to the joists and secured to and crossing the
 rafters at an intermediate point, wall plates
 100 connecting the upper ends of the rafters,
 and lookout rafters resting on the wall
 plates and connected to intermediate por-
 tions of the arcuate rafters.

6. In a barn, the combination of opposed
 105 series of side studs arranged at each side of
 the barn and transversely connected by
 joists, arcuate rafters extending upwardly
 and inwardly from the ends of the joists
 and meeting at the apex of the roof, said
 110 studs being extended upwardly above the
 ends of the joists and their upper ends con-
 nected to each other by wall plates, ties con-
 necting the rafters to the studs above the
 joists, inclined braces extending from the
 115 upper ends of the studs to the joists and se-
 cured to and crossing the arcuate rafters at
 an intermediate point, and lookout rafters
 resting on the wall plates and connected to
 intermediate portions of the arcuate rafters.

In testimony that I claim the foregoing
 as my own, I have hereto affixed my signa-
 120 ture.

ALFRED A. GILMORE.