No. 777,945. PATENTED DEC. 20, 1904.

J. J. DUTTWEILER.

BARN CONSTRUCTION.

APPLICATION FILED JULY 28, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 7.

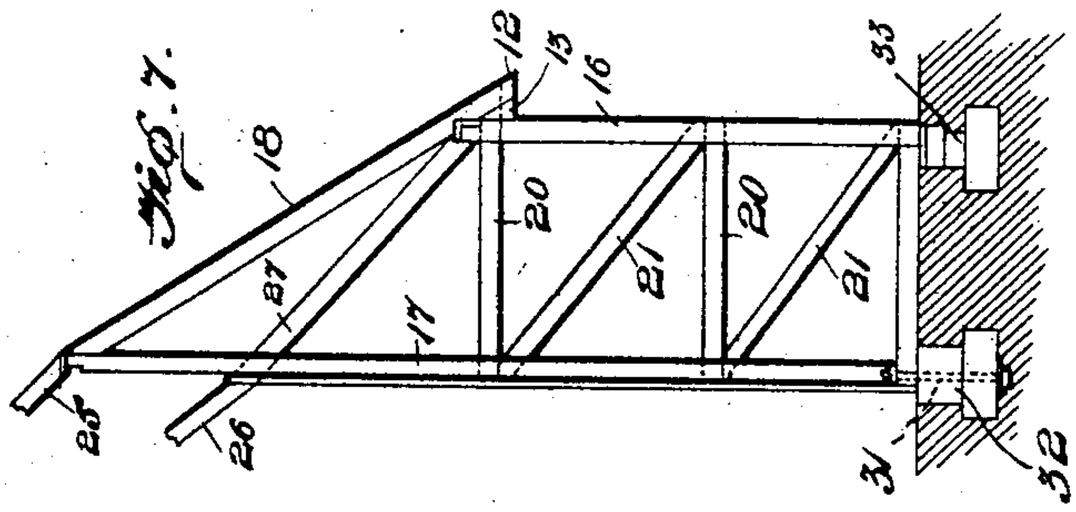


Fig. 4.

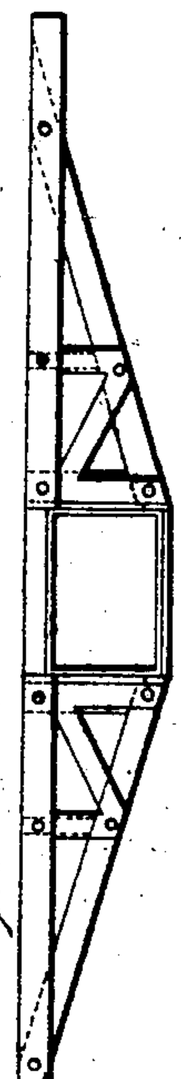


Fig. 5.

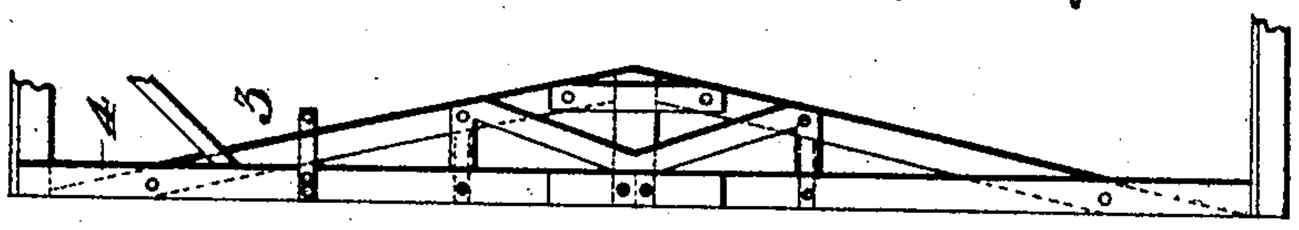


Fig. 3.

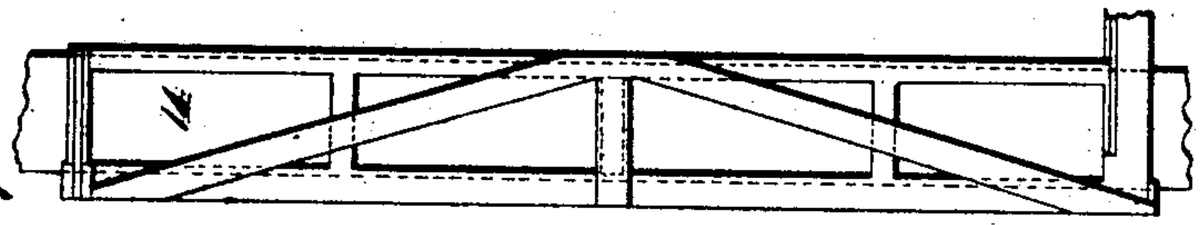
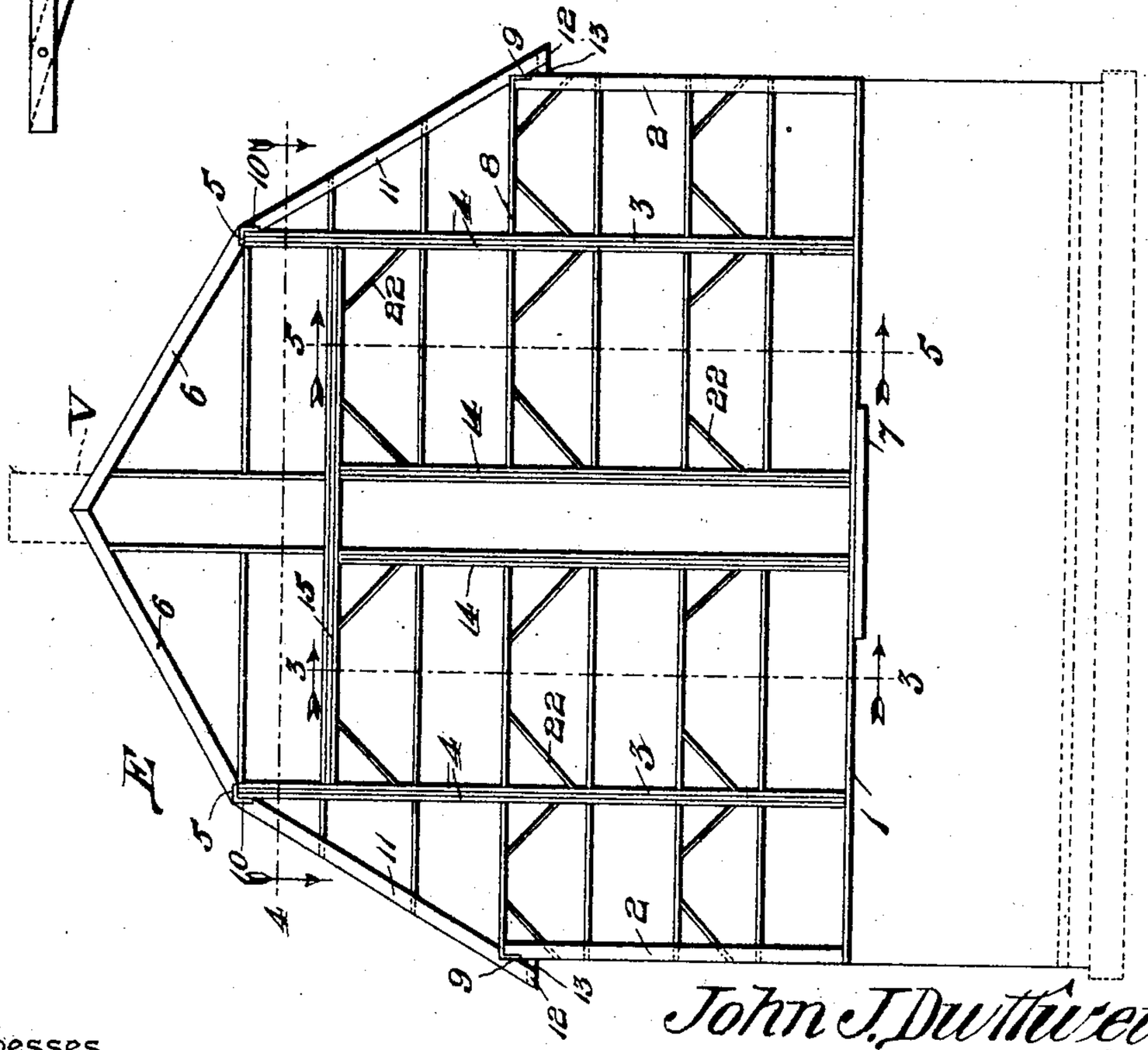


Fig. 1.



Witnesses

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BARN CONSTRUCTION.

APPLICATION FILED JULY 28, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

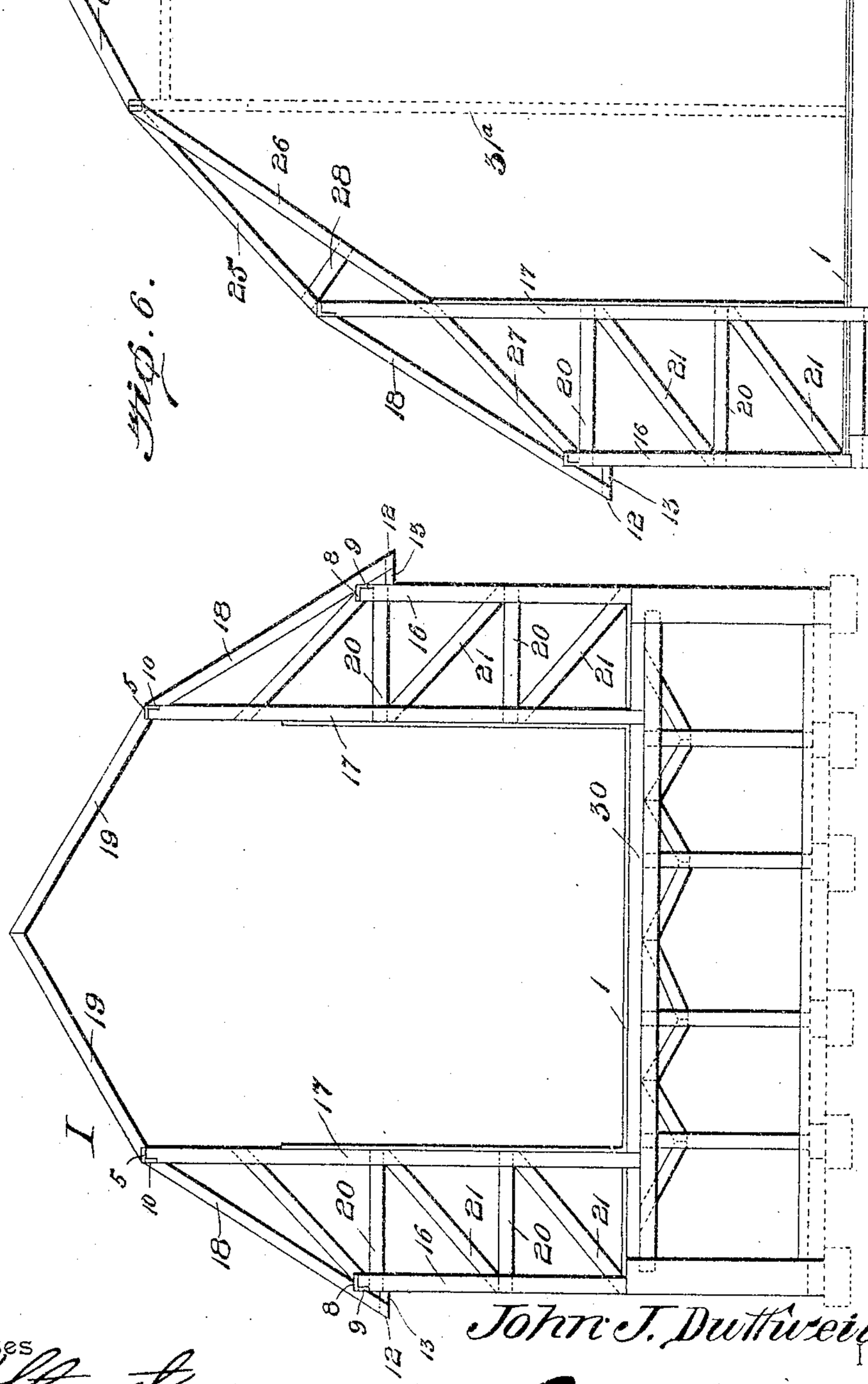

Fig. 6.

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No. 777,945. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

JOHN J. DUTTWEILER, OF FINDLAY, OHIO.

BARN CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 777,945, dated December 20, 1904.

Application filed July 28, 1904. Serial No. 218,578.

To all whom it may concern:

Be it known that I, JOHN J. DUTTWEILER, a citizen of the United States, residing at Findlay, in the county of Hancock and State of Ohio, have invented a new and useful Barn Construction, of which the following is a specification.

This invention relates to the construction of barns and other buildings of a similar nature; and it has for its object to effect certain improvements in the construction of buildings of the class referred to whereby the cost of construction may be materially reduced, while the building shall be possessed of great strength and power to resist not only exterior pressure caused by the wind, but also interior pressure caused by the contents of the building.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications to which recourse may be had within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is an end elevation exhibiting one end bent of the barn-frame. Fig. 2 is an elevation of one of the interior bents. Fig. 3 is a vertical section taken on the line 3 3 in Fig. 1. Fig. 4 is a horizontal section taken on the line 4 4 in Fig. 1. Fig. 5 is a vertical sectional view taken on the line 5 5 in Fig. 1. Fig. 6 is an elevation illustrating an inner bent of a barn-frame of a slightly-modified construction used particularly in the erection of large barns. Fig. 7 is a detail view illustrating a modified construction of the invention.

Corresponding parts in the several figures are indicated by similar characters of reference.

In the construction of a barn according to the principle of my invention two end bents and any desired number of inner or intermediate bents may be employed, the outline and proportions of the end bents and of the intermediate bents being always the same.

In the form of embodiment of the invention illustrated in Figs. 1, 2, 3, 4, and 5 the end bents (generally designated E) comprise each a sill 1, upon the ends of which the corner-posts 2 are set. 3 3 are vertically-disposed trusses, each comprising a pair of boards 4 4, supported at their lower ends upon the sills and supporting at their upper ends plates 5, which in turn support the lower ends of rafters 6, the upper ends of which abut upon each other, as shown. V designates a ventilating-stack the lower end of which is supported about centrally upon the sill, where a door-lintel 7 is usually laid. This stack, which extends above the roof-rafters, is preferably constructed of matched boards and is provided at intervals with slides whereby the desired ventilation may be accomplished.

The corner-posts of the end bents support at their upper ends an end piece 8 and side plates 9. Side plates 10 are likewise secured to the upper ends of the trusses 3, said side plates 9 and 10 extending the entire length of the building and being connected with each of the inner or intermediate bents, as will be presently described. Rafters 11 extend from the upper ends of the corner-posts 2 to the upper ends of the trusses 3 of the end bents, where they are suitably connected in any convenient and durable manner. The lower ends of the rafters 11, which combine with the rafters 6 to form a hip-roof, are extended beyond the posts 2, so as to form eaves 12, which are reinforced by means of struts 13.

Adjacent to the sides of the ventilating-stack upon the end bent are secured trusses 14, whereby the general structure is greatly reinforced. An additional truss 15 is disposed horizontally in such a manner as to straddle the ventilating stack or shaft, which is there-

by braced and reinforced, while at the same time it assists in bracing the bent structure, as will be readily understood.

Each of the intermediate bents, which individually are designated I, is composed of side posts 16, corresponding with the end posts of the end bents and with uprights or purlin-posts 17, spaced from the posts 16 in a manner to correspond with the trusses 3 of the end bents. The upper ends of the posts 16 and uprights 17 support intermediate portions of the plates 9, 10, and 5, and the posts 16 are connected with the uprights 17 by rafters 18, while the top rafters 19, supported at their lower ends upon the plates 5, are extended upwardly to abut upon each other, as shown.

In the erection of a barn or building according to the construction herein set out the end bents and intermediate bents are all supported upon suitable sills and are connected as the construction proceeds by means of the plates which extend between the intermediate and end bents. The component parts are connected together securely at all suitable points, and wherever needed braces are employed—such as, for instance, horizontal braces 20, connecting the posts 16 with the uprights or purlin-posts 17 of the intermediate bents, obliquely-disposed braces 21, likewise connecting said posts and uprights, and obliquely-disposed braces 22, which are freely employed in the construction of the end bents and, in fact, wherever needed through the structure.

While the frame structure of this improved barn may be composed of any suitable material, such as timbers or structural iron, I prefer that it be constructed almost entirely of ordinary two-inch boards of suitable widths varying from four to ten inches, according to the strength needed in the particular places where the boards are employed. Thus, for instance, the posts 16 of the inner bents, as well as the uprights 17 of said bents, are each preferably composed of two two-inch boards spaced apart sufficiently for the insertion between them of the braces 21 21, which, all being nailed securely together, form a structure which is possessed of great strength and ability to resist pressure in any direction. In like manner the end bents, including the trusses of said bents, are preferably made up in substantially the same manner, as will be readily understood by reference to the drawings.

In Fig. 6 of the drawings has been illustrated a slight modification which simply shows the principle of the invention applied to a larger structure than that illustrated in the remaining figures. Under this modification additional rafters, such as 25, are inserted between the proximate ends of the rafters 6 and 11, and truss members 26 27 and struts 28 are employed for the purpose of sustaining these additional sections and the upper portion of the roof. It is obvious that when this modification is resorted to a much larger structure may be erected at a comparatively light additional expense and also that the roof will be thoroughly supported and braced. In Fig. 6, which represents one of the intermediate bents, dotted lines 30^a and 31^a have been placed to indicate the position of trusses upon the end bent, as will be readily understood.

In Figs. 1 to 6, inclusive, of the drawings the invention has been shown as applied to a barn constructed with a cellar underneath. In such case the purlin-posts 17 will be secured at their lower ends by nails or other anchoring means to the basement-girders 30. In the case of barns which are constructed without a cellar the purlin-posts 17 will be anchored, by means of rods 31, in concrete piers 32 of suitable dimensions to afford a secure anchorage and to prevent the posts from upward displacement by the wind. Piers 33 are likewise provided to support the sills of the structure.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. A barn or other building framed and constructed in accordance with this invention may be erected at a moderate cost and will compare favorably with other structures as regards strength and durability.

An important advantage of this invention as compared with structures that are composed wholly of heavy timbers or structural iron is that the boards and timbers required may be framed at the mill with comparatively slight expenditure of labor, thus enabling the parts to be put together on the ground where the building is erected at a cost for labor which is considerably less than that required when the framing of the material has to be done on the building-ground.

Having thus described the invention, what is claimed is—

1. In a barn structure, an end bent including a pair of corner-posts, a pair of trusses spaced from said corner-posts, auxiliary trusses spaced apart near the center of the bent, a horizontally-disposed truss supported upon the auxiliary trusses and connecting the same with the trusses near the corner-posts, rafters connecting the upper ends of the main trusses with the corner-posts, and rafters supported upon the upper ends of the main trusses and having their upper ends abutting upon each other.

2. In a barn structure, an end bent including corner-posts, a pair of upright trusses, a centrally-disposed ventilating-stack, auxiliary upright trusses adjacent to the sides of said stack, a horizontal truss including the venti-

lating-stack and connecting the upright trusses, rafters connecting the latter with the upper ends of the corner-posts, and rafters supported upon the upper ends of the upright trusses and having their upper ends abutted upon each other.

3. In a barn structure, an end bent including hipped rafters, corner-posts and upright trusses supporting the same, a centrally-disposed ventilating-stack, trusses adjacent to the sides of the latter, and a horizontally-disposed truss including the ventilating-stack, the lower rafters being extended below the upper ends of the corner-posts, and struts connecting said rafters and corner-posts.

4. In a barn structure, an inner bent having posts and uprights spaced apart and each composed of a pair of spaced boards, transverse braces spacing the said boards apart and connecting the posts with the uprights, oblique braces having their ends secured between the members composing the posts and the uprights, respectively, plates supported upon the posts and the uprights, rafters supported upon the plates carried by the posts and uprights, and auxiliary rafters supported upon the uprights and having their upper ends abutted upon each other.

5. In a barn structure, a bent including a pair of posts, a pair of uprights, rafters connecting the upper ends of the posts with the upper ends of the uprights, auxiliary rafters supported upon the upper ends of the posts, truss members connecting the upper ends of the posts with the upper end of the auxiliary rafters, struts connecting the latter with the truss members, and top rafters supported upon the meeting ends of the truss members and the auxiliary rafters and having their upper ends abutted upon each other.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN J. DUTTWEILER.

Witnesses:
H. WALTER DOTY,
JOHN M. HAMLIN.