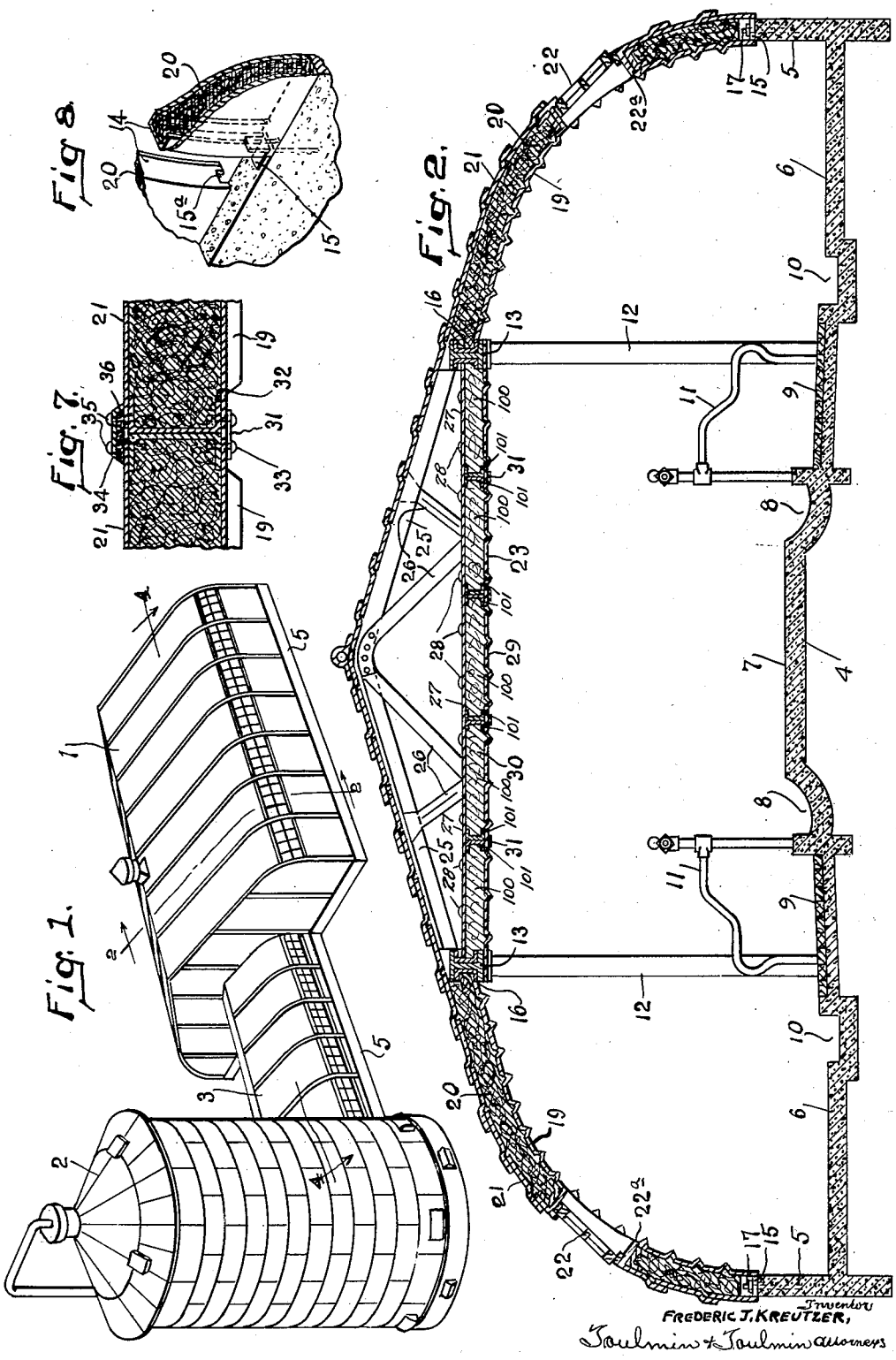
Nov. 20, 1934. F. J. KREUTZER 1,981,419

BUILDING

Original Filed Oct. 25, 1932 2 Sheets-Sheet 1



Nov. 20, 1934. F. J. KREUTZER 1,981,419

BUILDING

Original Filed Oct. 25, 1932 2 Sheets-Sheet 2

Fig. 3.

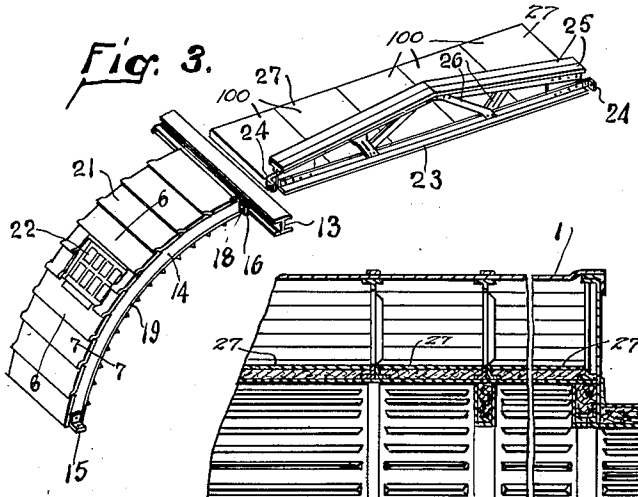


Fig. 4.

Fig. 5.

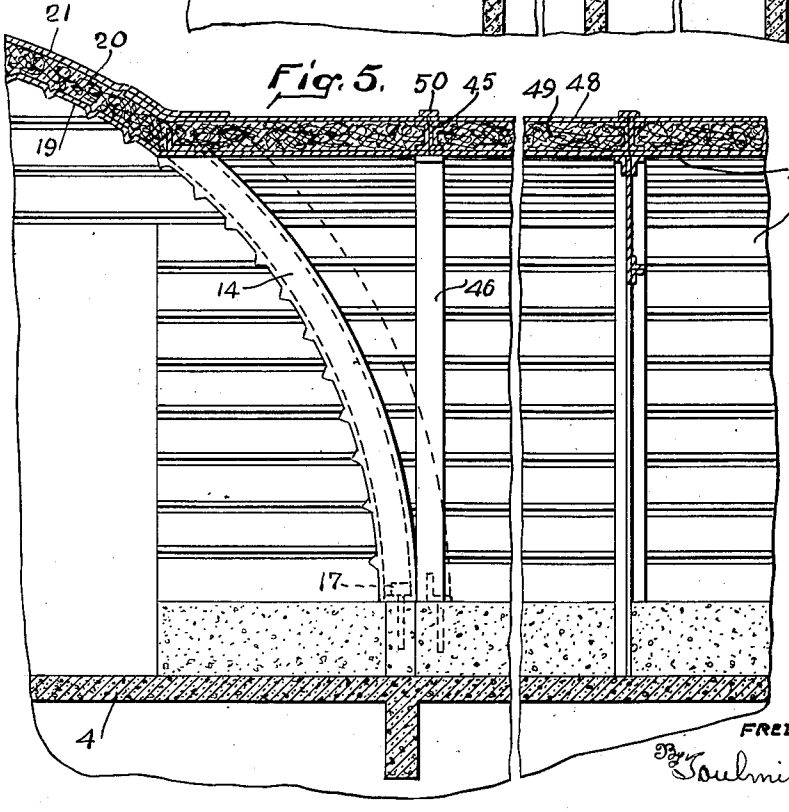
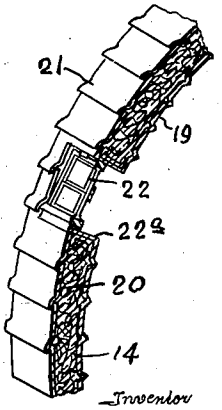


Fig. 6.



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Patented Nov. 20, 1934 1,981,419

UNITED STATES PATENT OFFICE

1,981,419

BUILDING

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Original application October 25, 1932, Serial No. 639,490. Divided and this application March 24, 1933, Serial No. 662,505

12 Claims. (Cl. 189—1)

My invention relates to buildings and in particular to sectional, standardized, expansible buildings adapted to be erected in units to form inclosures of fireproof character for stock, and inclosures or protecting barriers for stock when exercising or feeding in the open.

It is a further object of my invention to provide a structure comprised of several unitary elements which, by multiplication of such standard unitary elements, can make buildings of different widths, heights and lengths and different combinations of buildings, all in connection with fireproof feed storage chambers.

It is a further object of my invention to provide a system of feeding from remotely located fireproof storage feed chambers enough feed which can be consumed by the stock in the buildings of this invention so that there will be no storage of feed and therefore no fire hazard in the buildings in which the animals themselves are located.

In particular it is an object of my invention to provide the combination of a metal or other fireproof storage chamber for hay, and if desired, for ensilage, to provide a common communicative passageway between said storage chambers and the stables comprised of the buildings of my invention.

It is an object of my invention to provide adequate air circulation throughout the buildings and these storage chambers for the proper ventilation of the hay and of the buildings.

It is my object to provide a building having a fireproof foundation, such as concrete, arcuate side walls having ventilation and light windows, and intermediate roof construction comprising a roof plate and a sloping roof, such roof section being supported upon spaced columns which also support the inside ends of the arcuate side walls.

It is an object to provide a dead air space filled with insulation in the side walls and a dead air space in the roof section to thereby insulate the effects of heat and cold on the outside of the building from affecting the interior of the building. It is an object to provide the side walls of sectional metal so that the individual side wall unit comprises an arcuate strip having exterior independent overlapping metallic strips and an interior metal skin supported and spaced by arcuate metal ribs.

It will be understood that I desire to comprehend within my invention such modifications as come within the scope of my claims and my invention.

This is a division of my copending application, Ser. No. 639,490, filed October 25, 1932.

Referring to the drawings:

Figure 1 is an isometric view of a feed storage chamber and a feeding stall connected thereto.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a perspective of one section of a building showing it in the process of assembling.

Figure 4 is a section on the line 4—4 of Figure 1.

Figure 5 is a vertical section showing the manner in which a communicating passageway can be attached to the feeding stall.

Figure 6 is a section on the line 6—6 of Figure 3.

Figure 7 is a section on the line 7—7 of Figure 3.

Figure 8 is a perspective partly in section of two of the side wall sections about to be joined and permanently mounted on the foundation wall at their abutting bottoms and side edges.

In Figure 1 there is shown one form of complete assembly of parts of buildings to make a complete building. As shown in this figure, the complete structure consists of a building 1, used for milking, feeding and other purposes, connected to a silo or storage chamber 2 by means of a communicating building 3 forming a passageway between the silo and the milking stable or station.

Each separate part of the structure has a foundation 4 consisting of concrete, or other suitable material, surrounded by a vertical wall 5 which extends a suitable depth into the ground and a suitable height above the ground. The foundation of the stable structure has on each side a floor 6 for the stock to travel over to reach the various stalls in which they are placed.

There is provided longitudinally between each side of the stable and the longitudinal center thereof a feed trough 8. Between these feed troughs is a feed floor 7, along which the feed may be carried for distribution in the troughs on each side of the feed floor. Between each feed trough and one of the drain troughs is a wooden floor 9 upon which the cattle or stock stand. This floor may be of other suitable material. There is provided on each side of the building, parallel with each feed trough, a drain trough 10. Between each drain trough and its adjacent feed trough are stanchions 11 arranged for receiving and positioning cattle within the building, with their heads adjacent the feed trough provided for the stanchions.

Extending upwardly from the foundation and on the floor adjacent each drain trough is a plurality of posts 12, used for supporting the superstructure of the building. Extending longitudinally of the building and on each row of posts is a girder 13, consisting of an I-beam in the present instance. The roof or superstructure for each side of the building consists of units that may be placed together for forming a

complete inclosure for the side of the building and a part of the side of the roof. The number of these units depends upon the length of the building.

Each unit consists of a pair of arcuate ribs 14 and other structure supported thereby. At one end of one of these ribs is a bracket or flange 15, by which it may be attached to the foundation wall by means of bolts 17, while at its other end there is a similar bracket 16 by which the rib is attached to the girder 13 by means of bolts 18.

The other arcuate rib cooperating with the rib just described for forming a unit may have at each end a notch 15*a* which provides a seat for the flange 15 or the bracket or flange 16. On the under side of two arcuate ribs forming a support for one unit is a corrugated sheet of metal 19, which serves as an inner wall. Resting on top of this sheet of metal is insulating material 20, which serves to fill the space between the arcuate ribs and is covered by metal sheets 21, suitably attached to the outside of the arcuate ribs to form a roof structure proper and outer walls.

In each unit of any such units as may be desired is a window 22. Each window is located in an opening in the unit, which has around it a frame 22*a* formed by bending up a part of the corrugated ceiling material. Extending across the building and connecting two longitudinally extending girders 13 are a plurality of beams 23, arranged in pairs according to the arcuate ribs 14. Each pair of beams, support ends of overhead units or ceiling sections 100.

At each end of one beam of each unit is a plate or bracket 24 by which the beam is attached to the two longitudinal girders 13. Supported above the beams is a V-shaped roof structure consisting of two members 25, connected together at their upper ends and supported at their lower ends by members 23 on the longitudinal girders 13. Between these members 25 and the beams 23 are braces 26 for supporting the members 25 and the metal sheets forming the roof located upon these members.

Supported side by side at their ends by the transverse beams are a plurality of ceiling sections 100 as shown by Figures 2 and 3. Each ceiling section is composed of upper metal plates 27 and lower corrugated plates 29 between which is located insulating material 30. The ceiling sections are provided on their side edges with channel members 101. The channel members 101 are located in abutting relation as indicated in Figure 2. The ceiling units are united to each other by plates 31. On the undersides of these plates, as indicated in Figure 7, are also united the arcuate wall sections. The ends of the ceiling units are held to the cross beams 23 by bolts 28.

On the top or outside of the units is a strip 34 attached to the flanges 32 on the upper edges of the arcuate ribs or transverse beams by means of bolts 35. This strip 34 has its edges bent down to engage the metal sheets 21 forming the roof, and has between it and the main body of the structure waterproofing material 36.

The silo 2 has an exterior wall 37, which has within it and spaced therefrom an interior foraminous wall 38. The silo is covered by means of a roof 39, suitably supported on the exterior wall. The part of the silo indicated by the numeral 40 forms a ventilated hay storage chamber. Centrally located within the silo is a feed storage chamber 41 surrounded by an inner wall 42. For the purpose of discharging hay from the hay storage chamber there is provided a chute 43 leading from the chamber into the passageway leading from the silo into the silo or barn section. The numeral 44 represents a door or passageway leading to the hay storage chamber from the passageway to the barn.

The passageway or connection between the silo and the storage chamber is constructed of units similar to the units found in connection with the milking or feeding station 1. In this section there are arcuate ribs 45, supported by posts 46. Each of these sections is formed of an inside corrugated plate 47 and outside plates 48 with insulating material 49 between the outside plates and the inside plate. There is a sealing strip 50 over the seam between adjacent units used in the formation of the connection between the silo and the other parts of the building.

By means of the various units complete buildings of various sizes may be made. In Figure 1 the milking or feeding station is composed of seven units, but may be composed of any number of units by the addition or subtraction of units. A silo may be arranged at each end of the milking or feeding station.

By the connection shown in Figure 5 a silo may be connected to either side of the milking station, or other milking stations may be connected to the one shown in Figure 1. These additions and changes may be made without using anything but the structural unit set out in the present application.

It will be understood that I desire to comprehend within my invention such modifications as come within the scope of my claims and my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In combination, a portable building consisting of a foundation having a horizontal portion and side wall portions, arcuate sectional side wall sections mounted thereon each section consisting of inner and outer sheathing having insulation between said sheathing, longitudinally disposed I-beams adapted to receive the upper ends of said side wall sections, means for connecting the sides of said sections, and spaced posts mounted on said foundation for supporting said I-beams.

2. In combination, a portable building consisting of a foundation having a horizontal portion and side wall portions, arcuate sectional side wall sections mounted thereon each section consisting of inner and outer sheathing having insulation between said sheathing, longitudinally disposed I-beams adapted to receive the upper ends of said side wall sections, means for connecting the sides of said sections, spaced posts mounted on said foundation for supporting said I-beams, and an intermediate roof section carried between said I-beams and supported thereby.

3. In combination, a portable building consisting of a foundation having a horizontal portion and side wall portions, arcuate sectional side wall sections mounted thereon each section consisting of inner and outer sheathing having insulation between said sheathing, longitudinally disposed I-beams adapted to receive the upper

ends of said side wall sections, means for connecting the sides of said sections, spaced posts mounted on said foundation for supporting said I-beams, and an intermediate roof section carried between said I-beams and supported thereby, said roof section being of the same width as said side wall sections.

4. In combination, a portable building consisting of a foundation having a horizontal portion and side wall portions, arcuate sectional side wall sections mounted thereon each section consisting of inner and outer sheathing having insulation between said sheathing, longitudinally disposed I-beams adapted to receive the upper ends of said side wall sections, means for connecting the sides of said sections, spaced posts mounted on said foundation for supporting said I-beams, and an intermediate roof section carried between said I-beams and supported thereby, said roof sections comprising a ceiling plate, a marginally arranged, vertically disposed truss and a roof covering on the top of said truss.

5. A portable building composed of a number of pre-formed sectional units, certain of said sectional units consisting of arcuate side walls, a plurality of columns, a plurality of inner connecting trusses between said columns, and means supported on said columns for supporting the upper ends of said arcuate wall sections and supporting on the opposite side thereof said wall trusses, said trusses supporting a plurality of roof members, each of said arcuate wall sections being composed of pre-formed inner and outer sheathing having interposed insulating material between said sheathing.

6. A portable building composed of a number of pre-formed sectional units, certain of said sectional units consisting of arcuate side walls, a plurality of columns, a plurality of inner connecting trusses between said columns, and means supported on said columns for supporting the upper ends of said arcuate wall sections and supporting on the opposite side thereof said wall trusses, said trusses supporting a plurality of roof members, each of said arcuate wall sections being composed of pre-formed inner and outer sheathing having interposed insulating material between said sheathing, a plurality of pre-formed ceiling sections, certain of said sections having their ends in interlocking connection with said means and on the opposite side of said means from said wall sections.

7. A portable building composed of a number of preformed sectional units, certain of said sectional units consisting of arcuate side walls, a plurality of columns, a plurality of inner connecting trusses between said columns, and means supported on said columns for supporting the upper ends of said arcuate wall sections and supporting on the opposite side thereof said wall trusses, said trusses supporting a plurality of roof members, each of said arcuate wall sections being composed of pre-formed inner and outer sheathings having interposed insulating material between said sheathings, a plurality of pre-formed ceiling sections, certain of said sections having their ends in interlocking connection with said means and on the opposite side of said means from said wall sections, said ceiling sections being each composed of inner and outer sheathings with an insulating material therebetween.

8. A portable building consisting of a plurality of pre-formed arcuate side wall sections, each of said sections having inner and outer sheathings and insulating material therebetween, a plurality of posts, channeled members supported on said posts and housing the upper ends of said arcuate wall sections, a plurality of trusses being supported on the opposite side of said channeled members from said arcuate wall sections, and a roof supported on said truss members and having portions overlapping said arcuate wall sections.

9. A portable building consisting of a plurality of pre-formed arcuate side wall sections, each of said sections having inner and outer sheathings and insulating material therebetween, a plurality of posts, channeled members supported on said posts and housing the upper ends of said arcuate wall sections, a plurality of trusses being supported on the opposite side of said channeled members from said arcuate wall sections, a roof supported on said truss members and having portions overlapping said arcuate wall sections, and a plurality of ceiling sections, certain of said sections having sides fitting in interlocking relation with said channeled members and on the opposite sides of said arcuate wall sections.

10. In combination, in a portable building, a plurality of pre-formed arcuate wall sections having inner and outer sheathing, and insulating material therein, arc-shaped channel members forming the sides of said sections, means for connecting the abutting sides of said arcuate wall sections, a plurality of posts, channeled members mounted on said posts having channels into which the upper ends of said arcuate wall sections fit in interlocking relation, a plurality of trusses connected to said channeled members on the opposite side of said arcuate wall sections, and a roof mounted on said trusses.

11. A portable building consisting of a plurality of pre-formed arcuate wall sections, each of said wall sections consisting of inner and outer sheathing with insulating material between said sheathing, a plurality of posts, I-beam members mounted on said posts having channels into which the upper ends of said arcuate wall sections fit, a plurality of trusses supported on said I-beam members, a roof supported on said trusses, said trusses and said I-beam members forming the support for a plurality of pre-formed sectional ceiling plates.

12. A portable building consisting of a plurality of pre-formed arcuate wall sections, each of said wall sections consisting of inner and outer sheathing with insulating material between said sheathing, a plurality of posts, I-beam members mounted on said posts having channels into which the upper ends of said arcuate wall sections fit, a plurality of trusses supported on said I-beam members, a roof supported on said trusses, said trusses and said I-beam members forming the support for a plurality of pre-formed sectional ceiling plates, said ceiling plates each consisting of inner and outer sheathing members, and insulating material between said members.

FREDERIC J. KREUTZER.