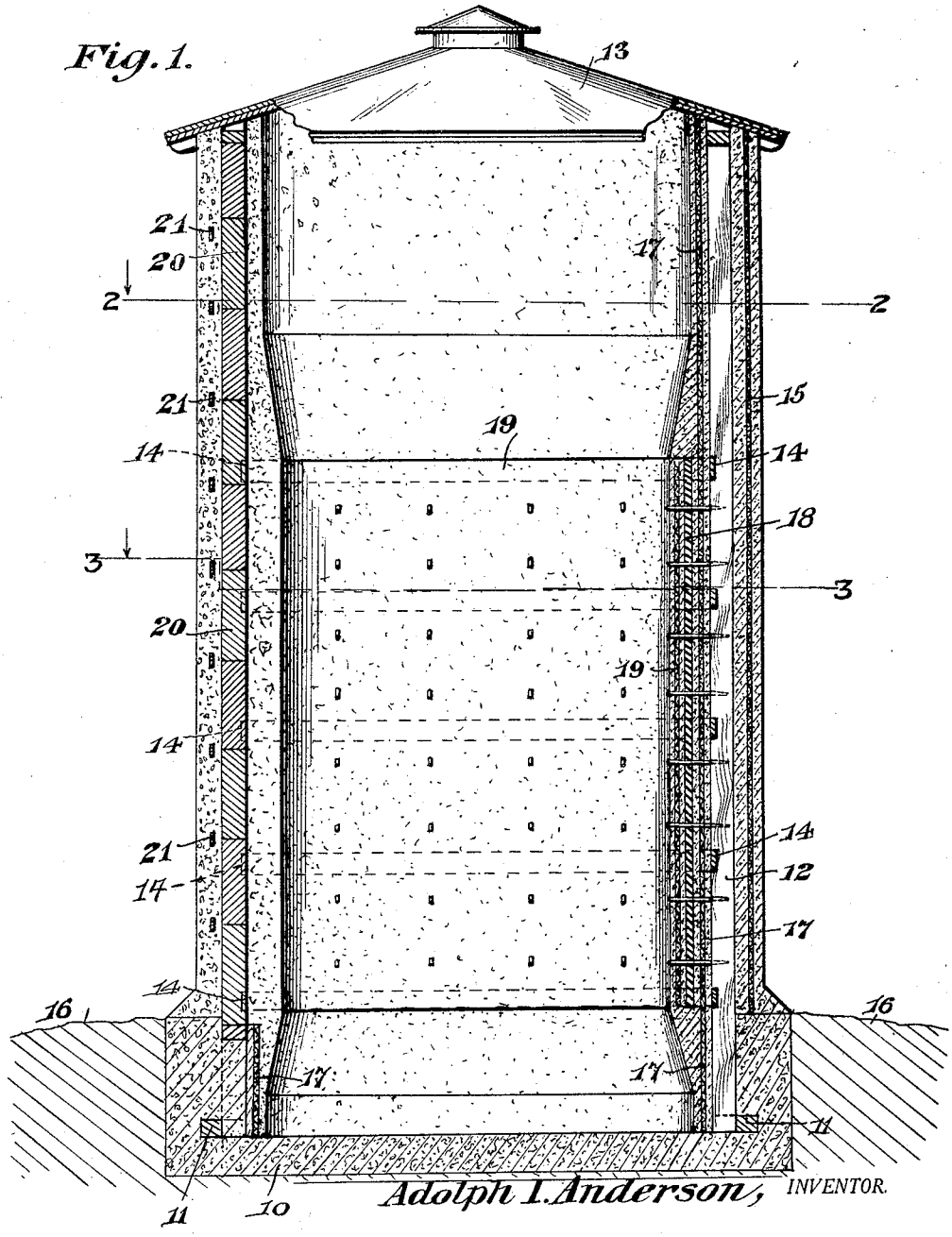
Nov. 18, 1924. 1,516,320

A. I. ANDERSON

SILO CONSTRUCTION

Filed Feb. 18, 1924 2 Sheets-Sheet 1

Fig. 1.



Adolph I. Anderson, INVENTOR.

BY

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Fig. 2.

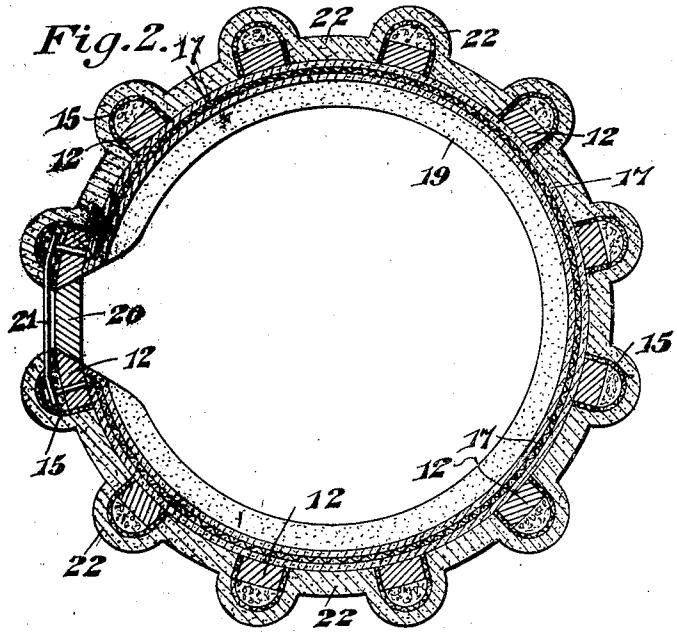


Fig. 6.

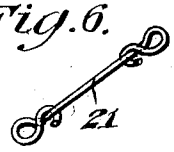


Fig. 5.

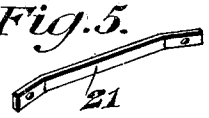


Fig. 3.

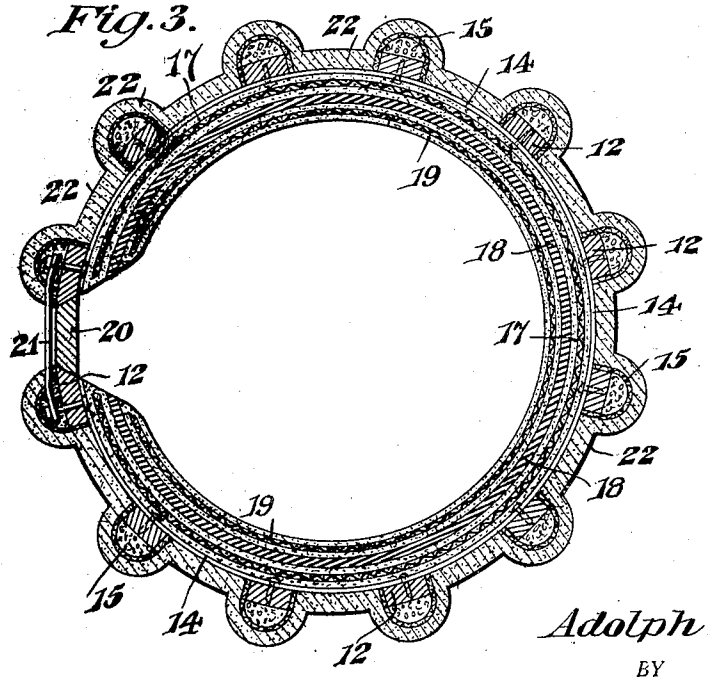
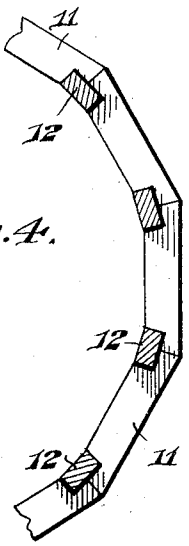


Fig. 4.



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Patented Nov. 18, 1924. 1,516,320

UNITED STATES PATENT OFFICE.

ADOLPH I. ANDERSON, OF ZUMBROTA, MINNESOTA.

SILO CONSTRUCTION.

Application filed February 18, 1924. Serial No. 693,619.

To all whom it may concern:

Be it known that I, ADOLPH I. ANDERSON, a citizen of the United States, residing at Zumbrota, in the county of Goodhue and State of Minnesota, have invented certain new and useful Improvements in Silo Constructions, of which the following is a specification.

This invention relates to improved silo construction, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a device of this character which provides a wall structure having insulating qualities to protect the contents from frost, and to apply the protective features only where required.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention.

Figure 1 is a vertical section of one of the improved structures.

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

Figure 3 is a transverse section on the line 3—3 of Figure 1.

Figure 4 is a sectional detail of a portion of the base or footing portion of the improved structure.

Figures 5 and 6 are detached perspective views of two forms of the combined braces and ladder steps.

In portions of the country subject to relatively low temperatures during the winter season, silos are generally filled during the month of September, and the contents settles about six feet, and if the silo is thirty-six feet high, which is the average height, the contents would occupy about thirty feet of the structure. The feeding generally begins from October first to November first, or before the weather is sufficiently cold to subject the contents to freezing temperature.

The feeding up to this time will have reduced the contents of the silo of from five to ten feet, thus leaving from twenty to twenty five feet of silage, or about 15 to 20 feet above the ground line, and this amount only requires protection from the frost, and the principal object of the present invention is to provide a structure in which provision is made for protecting the contents at the portion only where subject to the effects of frost.

The improved structure comprises a base or foundation 10 preferably of concrete or the like, and located below the surface of the ground. The silo structure includes a plurality of foot members 11 with reversely bevelled confronting ends, so that when engaged end to end they form polygonal outline and rest upon the base portion 10. At the junctures of the members 11 vertical posts 12 are supported, and at their upper ends the posts are united to form a support for a roof, represented as a whole at 13. At suitable intervals the posts 12 are coupled by circular metal bands 14, the latter preferably embedded in the inner faces of the posts, as indicated in Figure 3.

Bearing over the sides and outer face of each of the posts 12 is a strip of heavy wire screen material 15 bent into U shape transversely, and the spaces between the outer faces of the posts and the screen material filled with water proof plaster or cement, which hardens or sets into a solid mass. The posts thus constructed will be located at any required distance apart, and the members 11 will be proportioned to correspond to the number of the posts employed.

A structure of any general diameter or capacity may be constructed by increasing or decreasing the number of lengths of the posts and the lengths of the base or foot members 11, as will be obvious.

The vertical walls of the structure within the lines of the posts 12, are in three portions, a lower portion below the surface of the ground, indicated at 16, an intermediate portion extending for a distance above the surface of the ground, and of frost proof construction, and an upper portion extending to the roof 13 and not necessarily of frost proof construction.

Attached to the inner faces of the posts 12, and extending the full length to the roof 13, thus including the portion below the ground line, are sheets of reinforced moisture proof plaster material indicated conventionally at 17.

The material used for the general inner wall structure is preferably the material known as ribbed lath with moisture proof plastic material on both sides of the lath as indicated.

Applied to the inner face of the material 17 for about twenty feet, more or less, above the ground line, is a layer of felt material, indicated at 18, and applied to the inner face of the felt material is another layer of rib lath and its plaster coating and represented at 19. The three thicknesses of material 17–18–and 19, form an effectual frost proof wall only where the contents of the structure are liable to be effected by frost.

The doorway openings of the improved structure are defined by one pair of the posts 12, as shown in Figures 2 and 3, the latter forming the door jambs, and are preferably of greater width than the other posts and with their confronting edges bevelled toward the interior of the structure. The door sections are represented at 20 and are superposed with their side edges reversely bevelled to correspond to and closely engage the bevelled edges of the jamb members. The door sections are held in closed position by the contents of the structure, and are removable inwardly when the silage is removed.

Extending across the space between the jamb members opposite the junctures of the door sections are tie bars or rods 21, being preferably bolted or otherwise secured at the ends by bolts or the like to the jamb members, the terminals of the rods being embedded in the concrete material within the reinforcing members 15, as shown in Figures 2 and 3.

The member 21 may be in the form of flat bars perforated to receive the bolts as shown in Figures 1, 2, 3 and 5, or in round rod form as shown in Figure 6, with bolt receiving terminal eyes, or other form as preferred.

The members 21 thus serve as tie members to hold the jamb members from spreading, and also as ladder steps, to enable the operator to handle the closures or door sections, and also to support him while inserting or removing the silage.

Applied to the outer faces of the members 17 and the U-shaped screen members 15 is a coating or layer of concrete or moisture proof plastic material and indicated at 22, the plastic coating forming outwardly protruding vertical ribs having rounded outer faces, as indicated in Figures 2 and 3, the ribs forming pilaster like elements to reinforce and strengthen the structure.

By this arrangement a very strong and durable structure is produced which is frost and vermin proof and likewise insulated from either heat or cold.

The wood and metal parts may be connected by any suitable means for instance, by metal staples or the like and the structure may be any size or capacity.

The metal parts will be rendered non-corrodible in any suitable manner, for instance by galvanizing, or the like.

Having thus described the invention, what is claimed as new is:—

1. A structure of the class described comprising a base, a plurality of supporting posts rising from said base in spaced relation, a strip of foraminous material bent into U-shape transversely and attached to each post and extending outwardly, cementitious material disposed within the areas defined by the strips, an inner wall element bearing against the inner faces of the posts and a layer of cementitious material bearing upon the outer face of the wall element and of the U-shaped strips and forming outwardly directed pilaster like members externally of the structure.

2. A structure of the class described comprising a base, a plurality of supporting posts rising from said base in spaced relation, a plurality of annular bands connecting said posts in spaced relation, a strip of foraminous material bent into U-shape transversely and attached to each post and extending outwardly, cementitious material disposed within the areas defined by the strips, an inner wall element bearing against the inner faces of the posts and of the bands, and a layer of cementitious material bearing upon the outer faces of the wall element and the bands, and of the U-shaped strips and forming outwardly directed pilaster like members externally of the structure.

3. A structure of the class described comprising a base, a plurality of supporting posts rising from said base in spaced relation, the confronting edges of one pair of said posts being bevelled inwardly, tie bars uniting said bevelled posts, a plurality of doors superimposed and having bevelled edges engaging the bevelled edges of said posts, a strip of foraminous material bent into U-shape transversely and attached to each post and extending outwardly, cementitious material disposed within the areas defined by the strips, an inner wall element bearing against the inner faces of the posts, and a layer of cementitious material bearing upon the outer face of the wall element and of the U-shaped strips and forming outwardly directed pilaster like members externally of the structure.

In testimony whereof, I affix my signature hereto.

ADOLPH I. ANDERSON.