V. J. MADSEN.

WALL STRUCTURE.

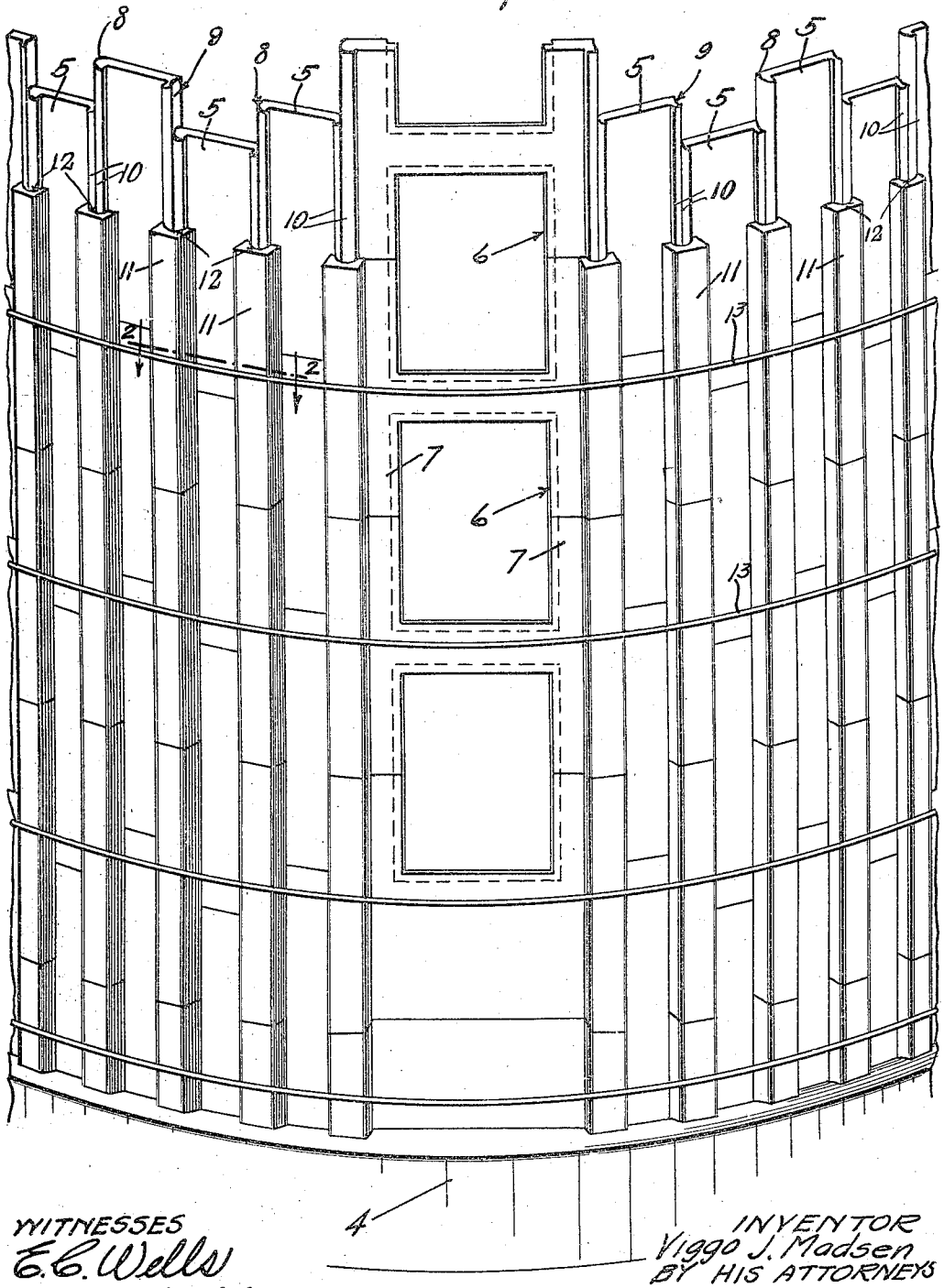
APPLICATION FILED APR. 26, 1918.

1,295,341.

Patented Feb. 25, 1919.

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES
E. C. Wells
A. H. Opsahl

INVENTOR
Viggo J. Madsen
BY HIS ATTORNEYS
Williamson Merchant

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

V. J. MADSEN.

WALL STRUCTURE.

APPLICATION FILED APR. 26, 1918.

1,295,341.

Patented Feb. 25, 1919.

2 SHEETS—SHEET 2.

Fig. 2

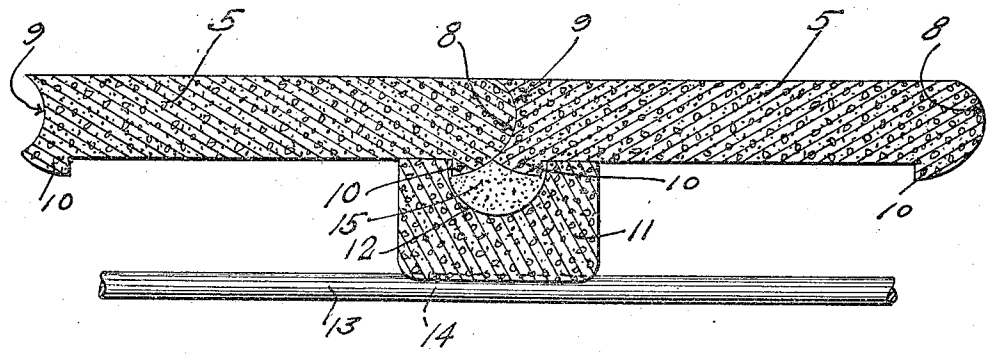
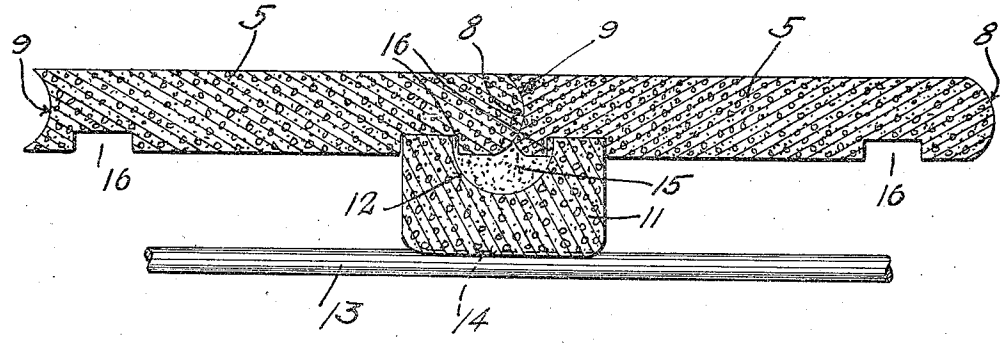


Fig. 3



WITNESSES

E. C. Wells

A. H. Opsahl

INVENTOR

Viggo J. Madsen

BY HIS ATTORNEYS

Williamson Merchant

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

VIGGO J. MADSEN, OF FARGO, NORTH DAKOTA.

WALL STRUCTURE.

1,295,341. Specification of Letters Patent. Patented Feb. 25, 1919.

Application filed April 26, 1918. Serial No. 230,880.

To all whom it may concern:

Be it known that I, VIGGO J. MADSEN, a citizen of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented certain new and useful Improvements in Wall Structures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved wall structure, especially adapted for use in the construction of masonry silos, or other cylindrical or substantially cylindrical buildings.

To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Figure 1 is a fragmentary perspective view of a silo embodying the invention;

Fig. 2 is a horizontal section, taken on the line 2—2 of Fig. 1, on an enlarged scale; and

Fig. 3 is a view corresponding to Fig. 2, but illustrating a slightly modified form of masonry slab.

The numeral 4 indicates a concrete or other suitable foundation or base upon which rest the cylindrical walls of a silo constructed in accordance with my invention. These cylindrical walls are formed from masonry slabs or staves 5, preferably composed of concrete, but may be made of the same material as brick or tile. As shown, the slabs 5 have flat inner and outer faces, but they, of course, may be made in various different forms.

The silo is provided with customary vertically spaced door openings 6, formed by the use of substantially H-shaped frame members, preferably composed of the same material as the slabs 5. The seating edges of the slabs 5 and frame members 7 are straight in cross section, at their upper and lower edges, and their vertical seating edges are convex at one side and concave at the other. These convex surfaces of the slabs 5 and frame members 7 are indicated by the numeral 8, and the concave surfaces thereof are indicated by the numeral 9. In assembling the slabs 5 it is, of course, understood that the convex surface 8 of one slab enters the concave surface 9 of the adjacent slab. Likewise, the convex surfaces 8 of the frame members 7 enter the concave surfaces 9 of the adjoining slabs 5, while the concave surfaces 9 of said frame members receive the convex surfaces 8 of the adjoining slabs 5. Any other desired form of joint, however, may be made.

Integral with the vertical edge portions of the slabs 5 and frame members 7, on the outer faces thereof, are shoulders 10. The vertical joints between the slabs 5 and also between the frame members 7 and adjoining slabs 5, are covered by sectional masonry ribs 11, also preferably of the same material as the slabs 5. In the backs of the ribs 11 are longitudinal channels 12, into which the shoulders 10 project, as best shown in Fig. 2. Obviously, these shoulders 10 hold the sections of the ribs 11 vertically alined, and, in turn, the ribs 11 hold adjoining slabs 5 interlocked.

A multiplicity of vertically spaced horizontal hoops 13 are placed around the silo for holding the slabs 5, frame members 7, and ribs 11 in assembled relation. These hoops 13 will, of course, be provided with the customary or any suitable devices, such as turn buckles, for circumferentially contracting the same. The hoops 13 bear directly upon the outer faces of the ribs 11 and are thereby held spaced outward from the outer walls of the silo. To assist in holding the hoops 13 in their proper horizontal positions, relatively shallow transverse grooves 14 are formed in the outer faces thereof.

As successive tiers of slabs 5, frame members 7, and rib sections 11 are built up, the respective hoop 13 is applied therearound. After each of these tiers is properly assembled, soft concrete 15 is poured in the channels 12 of the respective rib sections 11 to seal the vertical joints between adjoining slabs 5 and between the frame members 7 and adjoining slabs 5. As the hoops 13 are held spaced outward from the outer walls of the silo they may be used as the rungs of a ladder up which a person may climb at any point on the silo. The horizontal joints between the slabs 5 and rib sections 11 are preferably broken, as shown.

In the construction shown in Fig. 3, vertical grooves 16 are formed in the vertical

edge portions of the slabs 5 to receive the ribs 11 and take the place of the shoulders 10.

What I claim is:

1. A substantially cylindrical wall structure comprising circumferentially spaced masonry slabs, masonry ribs having channels in their backs that span the joints between adjoining slabs, shoulders on the slabs which hold the ribs against circumferential movement on the wall, hoops encircling the structure and bearing upon the ribs, and cement placed in said channels to seal the joints between adjoining slabs.

2. A substantially cylindrical wall structure comprising circumferentially spaced masonry slabs having interlocking edges, said slabs also having shoulders at their interlocking edges, masonry ribs having channels in their backs to receive said shoulders and span the joints therebetween, hoops encircling the structure and bearing upon the ribs, and cement placed in said channels to seal the joints between adjoining slabs.

In testimony whereof I affix my signature in presence of two witnesses.

VIGGO J. MADSEN.

Witnesses:

HANS J. PETERSEN,

M. L. FECKLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."