

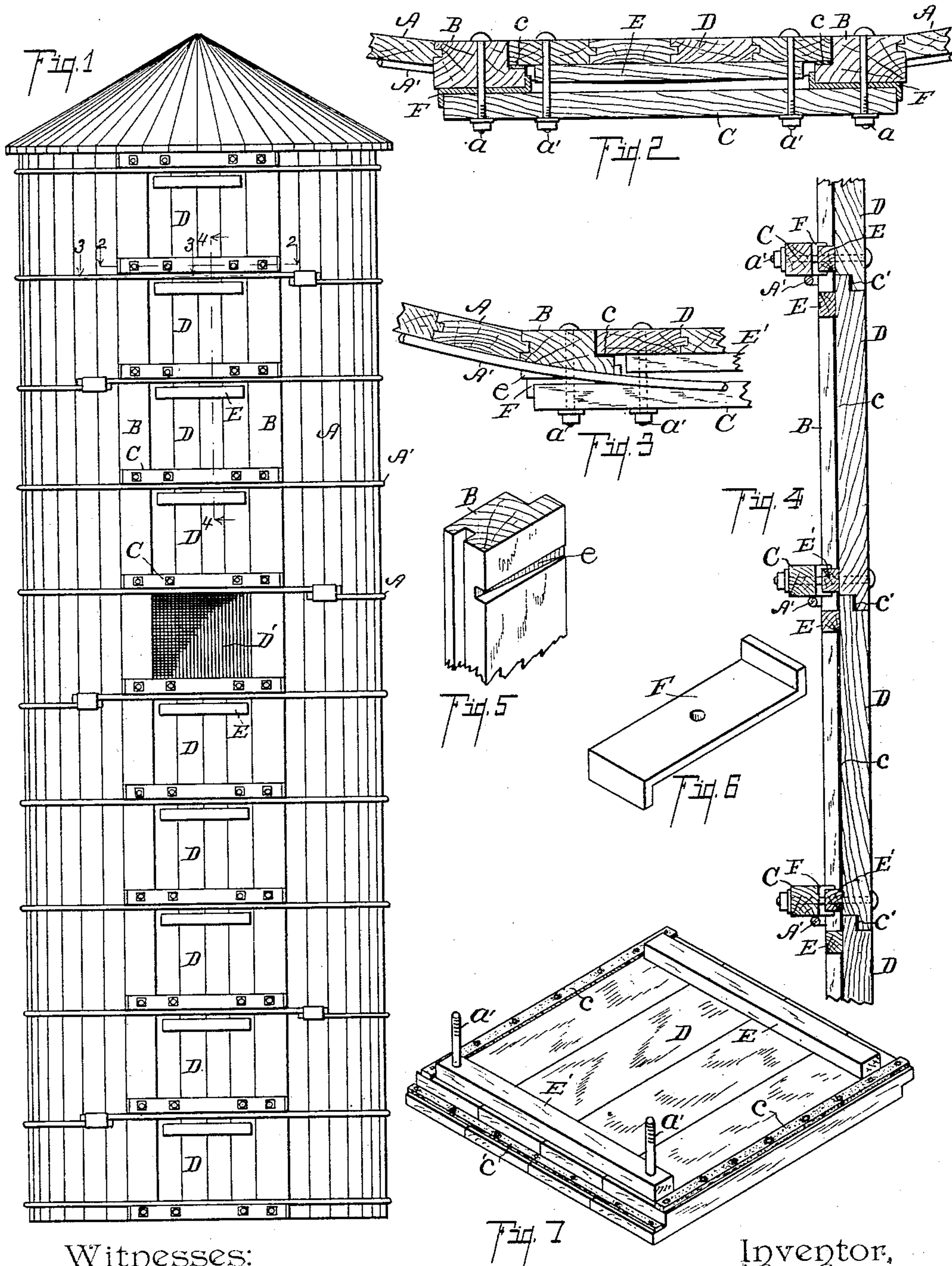
No. 746,017.

PATENTED DEC. 8, 1903.

W. B. CANNON.  
SILO.

APPLIOATION FILED JUNE 22, 1901.

NO MODEL.





# UNITED STATES PATENT OFFICE.

WARREN B. CANNON, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO THE WILLIAMS MANUFACTURING COMPANY, OF KALAMAZOO, MICHIGAN.

## SILO.

SPECIFICATION forming part of Letters Patent No. 746,017, dated December 8, 1903.

Application filed June 22, 1901. Serial No. 65,584. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN B. CANNON, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Silos, of which the following is a specification.

This invention relates to improvements in silos.

10 The objects of the invention are to provide a silo which will be cheap and easy to manufacture, easy to gain access to, which shall be very strong, and in which the openings are easily secured air-tight, and yet the doors can  
15 be easily removed and leave the openings continuous from top to bottom of the silo. The same is an improvement on that class of silos described in my Patent No. 624,751, dated May 9, 1899.

20 Further objects of the invention will fully appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in this specification.

25 The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

30 Figure 1 is an elevation view of a silo made according to my invention. Fig. 2 is an enlarged transverse detail sectional view on line 2 2 of Fig. 1 through one of the cross-pieces and doors. Fig. 3 is a transverse detail sectional view on line 3 3 of Fig. 1, showing the details of the arrangement of the hoop and adjacent parts. Fig. 4 is an enlarged detail sectional view on a line corresponding to line  
40 4 4 of Fig. 1. Fig. 5 is a detail perspective view of a portion of the side casing B of the doors. Fig. 6 is a detail perspective view of a coupling-iron F between the cross-pieces C and the side pieces B of the doors. Fig. 7 is  
45 a perspective view of one of the doors D, showing the bolts *a' a'* for extending through the cross-bar C to secure the door in position.

In the drawings all of the sectional views are taken looking in the direction of the little  
50 arrows at the ends of the section-lines, and

similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents the vertical staves of a silo of this kind suitably beveled and fitted together. 55

B B are door side pieces or casings which are made of extra thickness and are matched onto staves A. The inner side of the pieces B next to the door are rabbeted away to serve  
60 as door-jambs. Cross-pieces C extend between the side pieces B and are secured in position and made to withstand great strain by the Z-shaped casting F. A bolt *a* extends through the casting F and side pieces B. One  
65 end of the casting hooks onto the inside of the side piece B and the opposite end hooks onto the end of the cross-piece C, thus forming a very secure attachment for the piece C and one capable of resisting great strain in the  
70 direction of its length.

Into the side pieces B are cut gains *e* at each side, and hoops *A'* are put entirely around the silo, extending across the opening of the side pieces B B just beneath each cross-piece  
75 C and are drawn tight by any usual or satisfactory means adapted for that purpose.

Doors D are provided, the outer lower edge of each of which is rabbeted and the upper inner edge of each of which is correspond-  
80 ingly rabbeted, so that the doors can be placed one above the other and intermeshed. Between all the joints I place packings C, of heavy felt. Bolts *a' a'* extend through a cross-piece of the door into the cross-pieces  
85 C for drawing the said doors into position to form an air-tight joint, the doors being placed one upon the other, beginning at the bottom and going up, and being inserted one after the other as the silo is gradually filled, and  
90 they are taken out in the reverse order as the silo is gradually emptied.

I have described the structure thus completely and in detail, but desire to remark that the particular construction of door may  
95 be used with other bracing means, and while I have shown what I consider a superior and perfect means of holding the cross-braces in place I am aware that they might be otherwise secured.



I desire to remark that the cross-pieces C serve a very useful purpose as rungs of a ladder to enable any one to ascend to the top of the silo either when the doors are in position 5 or not in position.

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

1. In a silo, the combination of the upright 10 staves A; the door side pieces B; pieces C across the door-space; Z-shaped arms F for coupling the cross-pieces to the said side pieces, having bolts therethrough; a series of doors adapted to be placed one above the 15 other, the outer lower edge of each door being rabbeted away to fit the corresponding rabbets on the next succeeding door; suitable packings between the joints; bolts for securing and retaining the doors under pressure; 20 and hoops around the whole to retain the same securely in place, for the purpose specified.

2. In a silo, the combination of upright 25 staves; door side pieces B; pieces C across the door-space; Z-shaped arms F for coupling the said cross-pieces to said side pieces; a series of doors adapted to be placed one above the other, the outer lower edge of each door being rabbeted away to fit the corre- 30 sponding rabbets on the next succeeding door; suitable packings between the joints;

means for securing and retaining the doors under pressure; and hoops around the whole to retain the same securely in place.

3. In a silo, the combination of upright 35 staves; door side pieces B; pieces C across the door-space; Z-shaped arms F for coupling the said cross-pieces to said side pieces; a series of doors adapted to be placed one above the other, the outer lower edge of each 40 door being rabbeted away to fit the corresponding rabbets on the next succeeding door; means for securing and retaining the doors under pressure; and hoops around the whole to retain the same securely in place. 45

4. In a silo, the combination of upright staves; door side pieces B; pieces C across the door-space; a series of doors adapted to be placed one above the other, the outer lower 50 edge of each door being rabbeted away to fit the corresponding rabbets on the next succeeding door; suitable packings between the joints; means for securing and retaining the doors under pressure; and hoops around the whole to retain the same securely in place. 55

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

WARREN B. CANNON. [L. S.]

Witnesses:

S. ALICE EARL,

OTIS A. EARL.