C. C. CRADY.

SILO.

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1,167,354.

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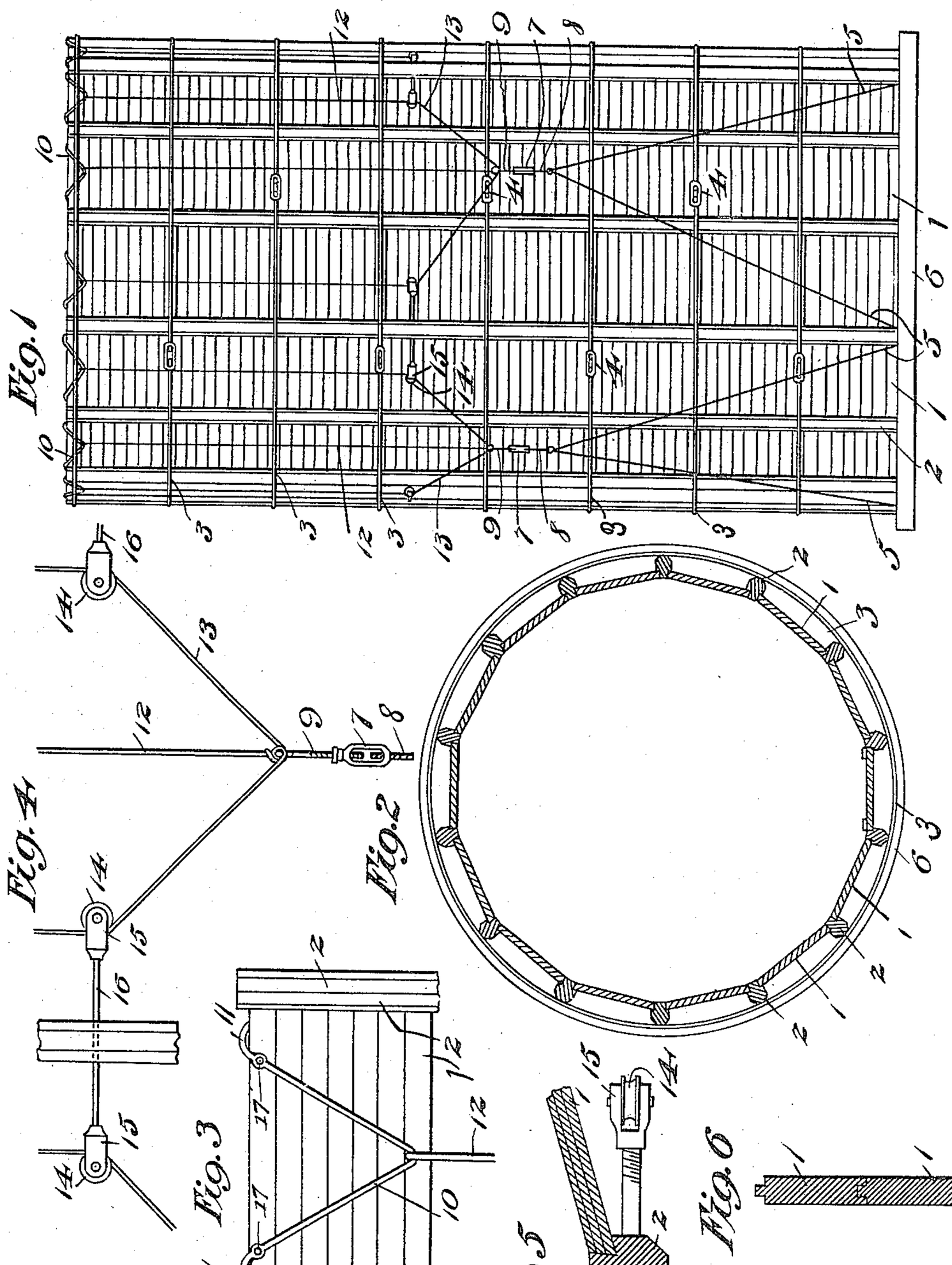

Fig. 1

Fig. 2

Fig. 4

Fig. 3

Fig. 5

Fig. 6

Witnesses

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SILO.

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To all whom it may concern:

Be it known that I, CHARLES C. CRADY, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented certain new and useful Improvements in Silos, of which the following is a specification.

My invention relates to silos and more particularly to means for tightening the boards and bracing the silos, and the object is to provide a silo which will be easily put together and braced and which can be kept in an air-tight and a liquid tight condition and to provide means for bracing the silo and for locking the boards in place.

Other objects and advantages will be fully explained in the following description and the invention will be more particularly pointed out in the claims.

Reference is had to the accompanying drawings which form a part of this application.

Figure 1 is a side elevation of a silo constructed in accordance with my invention. Fig. 2 is a horizontal section of the same. Fig. 3 is a detail view, illustrating the connection of the braces on top of a column of boards. Fig. 4 is a detail view, illustrating the cable connection of the cables for tightening the boards on each other vertically. Fig. 5 is a detail view, illustrating the manner of mounting the pulleys or idlers on which the cables run. Fig. 6 is detail section, illustrating the manner of putting the boards in by tongue and groove joints.

Similar characters of reference are used to indicate the same parts throughout the several views.

The silo set forth herein is constructed of boards 1 horizontally disposed and vertical beams 2. The boards 1 are put together by tongue and groove joints, as shown in Fig. 6. The usual bands 3 are placed around the silo outside of the beams 2 and tightened with turn-buckles 4. The boards 1 and the beams 2 are put together by a lock formed by making an acute angle in the beam at each inner edge, as shown in Fig. 5. The beams 2 are preferably four by four inches in cross-section with the angles formed in the inner edges. The boards are cut at the ends to conform to the angles in the upright beams. In this manner a perfect lock is formed. The beams 2 cannot spread outwardly on account of the bands 3.

The boards 1 are tightened vertically on each other by the cables shown. The cables 5 are anchored in the cement base 6 and connected at the upper ends with turn-buckles 7 by means of rods 8 which are provided with eyes through which the cables are run. Rods 9 connect with the upper ends of the turn-buckles and are provided with eyes in which the cables for the upper part of the silo are anchored. Bent rods, or rods bent V-shaped, are provided for engaging the upper ends of the columns of boards. The rod 10 has the upper ends bent to form hooks 11 to catch over the tops of the boards. One cable 12 is connected to the rod 9 and the cable 13 runs through the eye in rod 9 and the two ends are connected to bent rods 10. The cables 13 run over pulleys or idlers 14 and then up to the top of the silo and are attached to the rods 10. The idlers 14 are mounted in hangers 15 which are screwed on bars or rods 16. The bars 16 are mounted horizontally in the uprights 2. Each turn-buckle 7 has connected thereto a cable with two ends anchored in the cement base and has three connections at the top of the silo,—cable 12 running direct toward the top of the silo and the other cable 13 running to columns on each side of the column in which the cable 12 is located and connected to rods 10. Each turn-buckle thus pulls on three columns of boards. The silo can thus be braced equally at all points and the boards 1 tightened down on each other equally at all points and the boards are securely locked against inward movement by the angular cut-out in the vertical beams 2 and by the shapes of the ends of the boards. In such construction, there can be no buckling of the boards as in constructions in which the staves are vertically disposed. The rods 10 may be secured to the top board by bolts 17 so that there will be no displacement of the rods. The system of bracing the silo makes a complete anchoring means against the strains of winds on the silo.

Various changes in the construction of the several parts may be made without departing from my invention.

What I claim is:—

1. A silo constructed of vertical beams having vertical acute angular grooves cut in their inner corners, boards horizontally disposed and having their ends cut to con-

form to said grooves and projected into said grooves, a cement base, and means for tightening said boards vertically consisting of turn-buckles, a cable operatively connected with each turn-buckle and both ends anchored in said cement base, bent rods engaging the top of each column of boards, one cable connected to each turn-buckle and to the bent rod directly above the turn-buckle, another cable connected to the same turn-buckle and having the two ends connected to bent rods on each side of the first mentioned bent rod, and means for causing a direct pull on the cable on each side of the direct cable.

2. A silo constructed of vertical beams having grooves in their inner edges and columns of boards horizontally disposed with their ends projected in said grooves, bands on said silo outside of said beams, and means for tightening said boards on each other consisting of a turn-buckle for each three columns, a bent rod for each column with the ends hooked over the top board, a cable connected to said turn buckle and to the rod directly above the turn-buckle, a cable connected to said turnbuckle and to the bent rods in the columns adjacent to the first named cable connection, means for causing a direct pull on the rods by said last named cable, and a cable connected to the lower side of said turn-buckle and having its ends anchored to the bottom of said silo.

3. A silo constructed of vertical beams having grooves in their inner edges and columns of boards horizontally disposed with their ends projected into said grooves, bands on said silo on the outside of said beams, and means for tightening said boards on each other consisting of a bent rod for each column with its ends hooked over the top board and hanging down on the outside, a turn-buckle for each three columns located in the middle one of said three columns, a cable in said middle column connected to said turn buckle and to the bent rod in said middle column, a cable connected to said turn-buckle and to the bent rods in the adjacent columns, means for causing a direct pull of said cable on the rods in said adjacent columns, and a cable connected to the lower side of said turn-buckle and anchored to the bottom of the silo.

In testimony whereof, I set my hand in the presence of two witnesses, this 4th day of November, 1914.

CHARLES C. CRADY.

Witnesses:
A. L. JACKSON,
M. L. CHAMBERS.