W. H. MONROE.

SILO.

APPLICATION FILED MAR. 28, 1918.

1,314,531.

Patented Sept. 2, 1919.

2 SHEETS—SHEET 1.

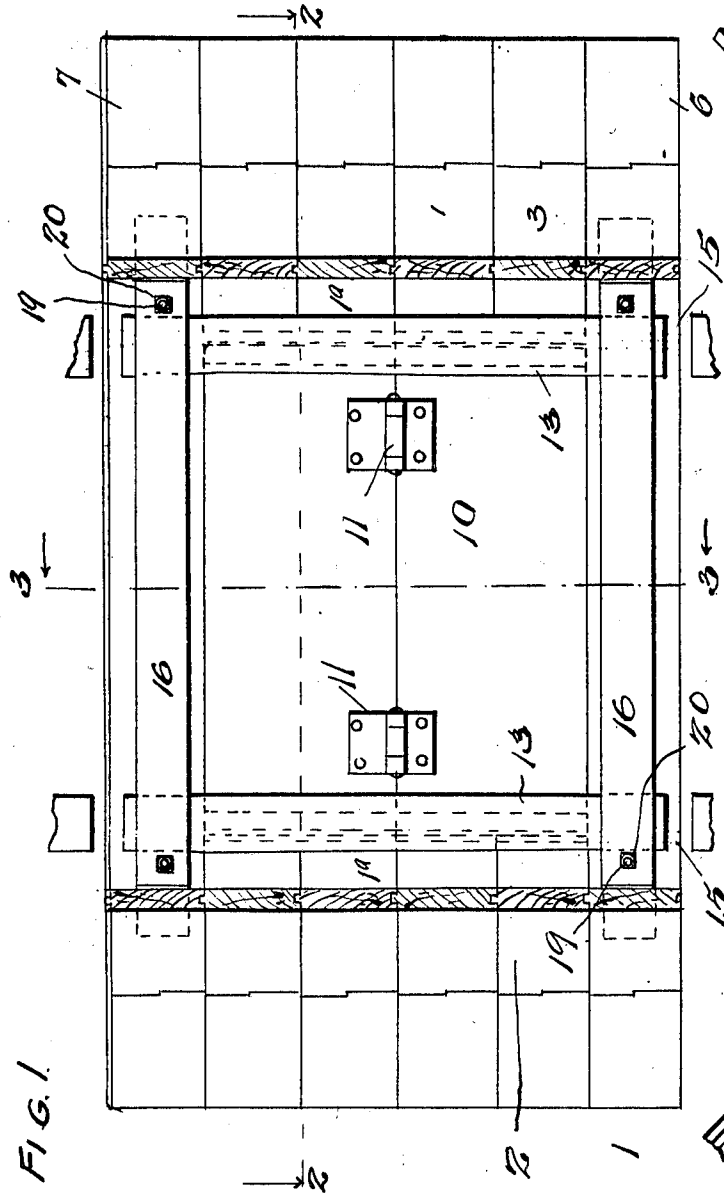


FIG. 1.

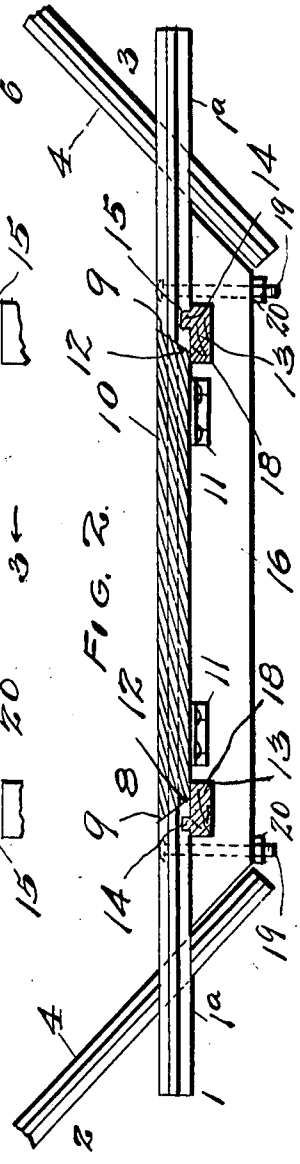


FIG. 2.

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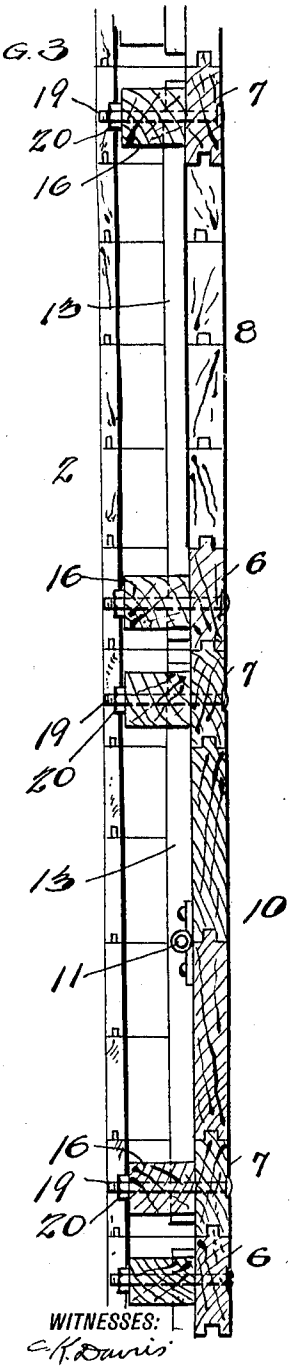
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2 SHEETS—SHEET 2.

FIG. 3



WITNESSES:
C. K. Davis

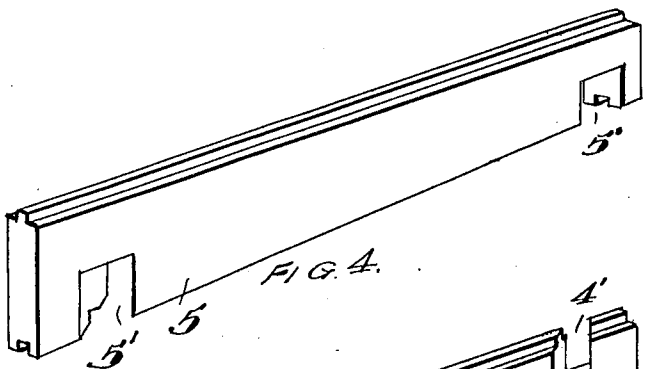


FIG. 4.

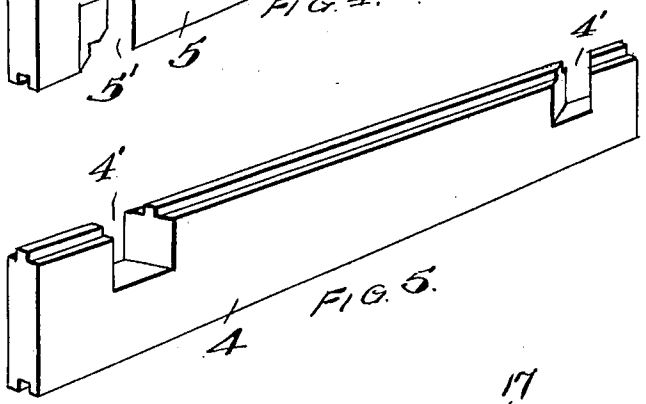


FIG. 5.

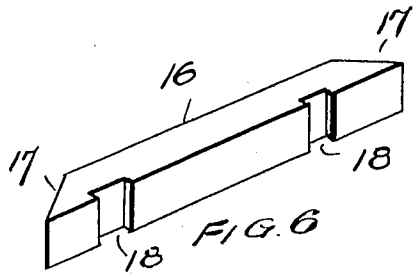


FIG. 6



FIG. 7.

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SILO.

1,314,531. Specification of Letters Patent. Patented Sept. 2, 1919.

Application filed March 28, 1918. Serial No. 225,220.

To all whom it may concern:

Be it known that I, WILLIAM H. MONROE, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Silos, of which the following is a specification.

The present invention relates to improvements in silos, and especially to the door construction thereof. The invention is specially applicable in certain types of silos built up of superimposed timbers built up to the required height, wherein the timbers swell or expand, and contract, so that the silo grows taller when filled, and, due to shrinkage, the silo becomes shorter when the timbers are dry and the silo empty.

The present structure of door and doorway is designed to compensate for this change in altitude of the silo, thus providing a door construction that will change with the changing conditions of the silo body.

The invention consists essentially in certain novel combinations and arrangements of parts as will be hereinafter more specifically pointed out and claimed.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode so far devised for the practical application of the principles of the invention.

Figure 1 is a front view of a portion of a silo showing the door section and a door in place.

Fig. 2 is a transverse sectional view on line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view on line 3—3 showing two sections of the door way, and one door closed.

Fig. 4 is a perspective view of one of the notched timbers and Fig. 5 is a similar view of a complementary timber.

Fig. 6 is a perspective view of one of the door cleats.

Fig. 7 is a perspective view of one of the door jambs.

For the purpose of illustrating the construction and adaptation of the invention I have utilized a portion of an octagonal or eight-sided silo, the front or door section being indicated by the numeral 1 and two of the sides being indicated as 2 and 3. The sides of the silo, and of course the silo itself, are built up of tongue and groove timbers 4 and 5, the former having oppositely extending oblique notches 4′ 4′ near their ends on the tongue edge of the timbers, and the latter having similar notches in all respects, 5′ 5′ cut through the grooved edge, as best seen in Figs. 4 and 5. For an octagonal shaped silo these notches or mortises are cut at an angle of 45° and the sides of the silo are built up as indicated in Figs. 1 and 3 especially, the timbers being laid on edge, one on top of the preceding timber, in layers or courses, with the mortised timbers interlocking to form rigid joints.

At regularly spaced intervals throughout the height of the silo are provided pairs of horizontal door-frames 6 and 7, which frames are constituted by the tongue and grooved timbers in the front side of the silo, that remain after groups of timbers 1^a have been cut out, to form the door spaces 8 8. The timbers 1^a are cut on bevel planes as indicated at 9, and the door 10, which is hinged at 11, has beveled side edges 12 to fit against the beveled walls 9 of the opening 8. The door 10 is shown of two pieces, hinged together, on horizontal lines, and is applied to the opening 8 from inside the silo. Each door, is of course, independent of, and separate from all others, but the doors and door frames are similar in all cases.

The door jambs 13 are vertically arranged wooden pieces at the sides of the door openings 8, with one edge projecting beyond the beveled edge 9 of the door opening, against which the outer face of the door contacts, and at the inner side of the jamb piece is provided a tongue 14, extending from end to end, and seated in a groove 15 cut in the face of the timbers 1^a near the edges 9 of these timbers. Thus, while the tongue and groove construction of the jamb and timbers 1^a serves to lock the parts against lateral movement, it will readily be seen that vertical movement, due to swelling or shrinkage, will be permitted, for the timbers 1^a.

The frame construction of the doors is strengthened by the use of timbers 16, forming cleats, that extend, horizontally, across the front of the silo, and have beveled ends 17, 17 to fit up into the angle or corner formed by the front 1 and side 2 and front 1 and side 3, as shown in Fig. 2, and these cleats are notched or mortised at 18 near their ends, and on their inner faces, to fit over the vertical jambs 13. One of these cleats is located above and another below

each of the openings 8, and they are for the purpose of locking the jambs in position and holding them rigidly, the bolts 19 and nuts 20, the former passing through the cleats and timbers 6 or 7, being employed to secure the cleats to the timbers. The cleats strengthen the door frame and compensate for the cut out portions of the timbers 1ª of the silo front, and the combination and arrangement of the cleats, with their beveled ends back of the ends of the side timbers, and of the jambs which are locked by the cleats, provide a strong and well braced door frame, and at the same time permit the structure to change with the corresponding changes in altitude of the silo, as described.

Claims—

1. The combination with the upper and lower timbers, intermediate cut-timbers forming a door opening and a door in each opening, of vertical jambs having their edges projecting over the vertical edges of the door opening, said jambs formed with tongues engaging complementary grooves in the intermediate timbers, and an upper and a lower horizontal cleat, notched to fit over the jambs to permit vertical expansion and contraction of the door member, and bolts and nuts securing said cleats to the upper and lower timbers.

2. The combination with a silo formed of superposed timbers in tiers, and the timbers in said tiers having interlocking means and forming sides to the silo, of a front side having spaced door openings each having an upper and a lower timber and intermediate timbers cut to form the openings having beveled lateral edges, a door having beveled edges in each opening, jambs projecting over the lateral edges of each door, and notched horizontal cleats secured to the upper and lower timbers and connecting the jambs in pairs, to permit vertical expansion and contraction of the door members.

In testimony whereof I affix my signature.

WILLIAM H. MONROE.

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