W. A. HILLMAN.

CONCRETE SILO.

APPLICATION FILED APR. 8, 1912.

1,086,295. Patented Feb. 3, 1914.

Fig. 1.

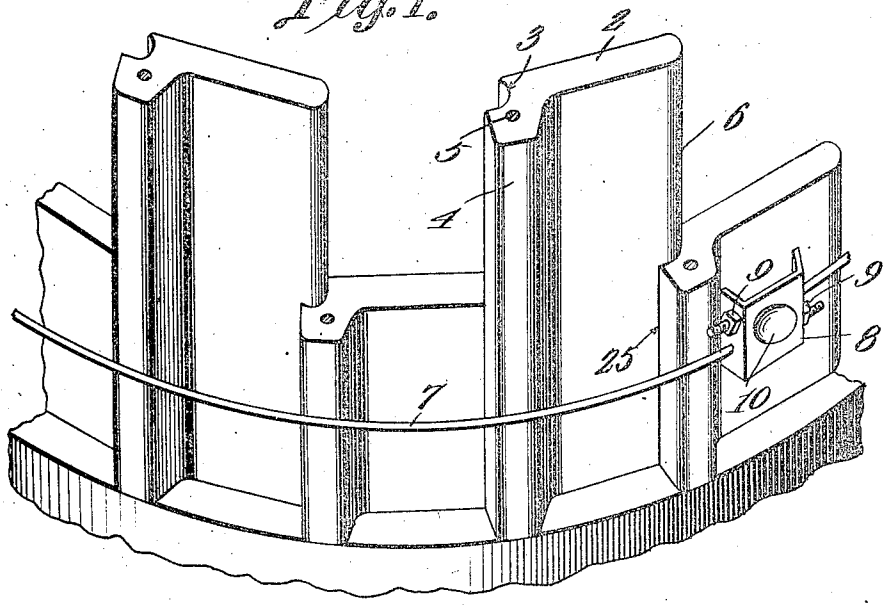


Fig. 4.

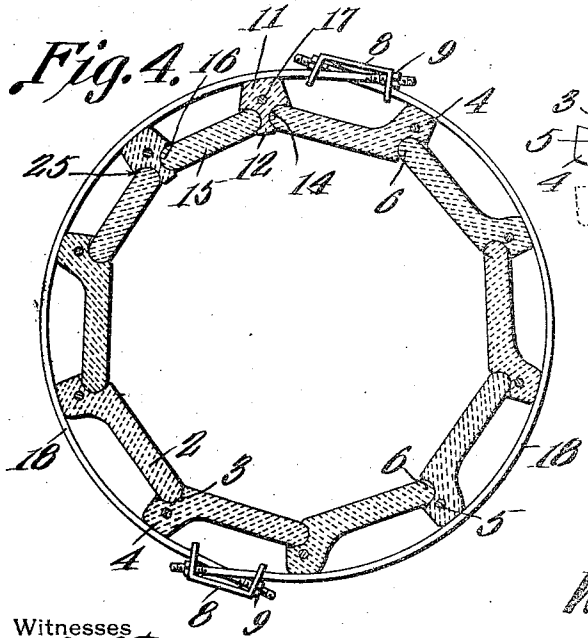
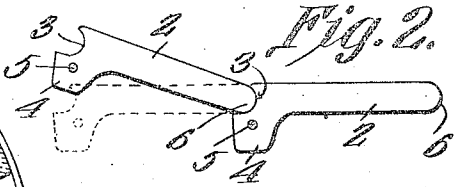


Fig. 2.



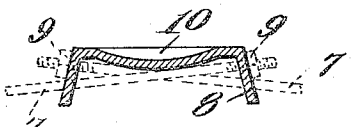


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM A. HILLMAN, OF ELGIN, ILLINOIS.

CONCRETE SILO.

1,086,295. Specification of Letters Patent. Patented Feb. 3, 1914.

Application filed April 8, 1912. Serial No. 689,259.

To all whom it may concern:

Be it known that I, WILLIAM A. HILLMAN, a citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented a new and useful Concrete Silo, of which the following is a specification.

The device herein disclosed is intended as an improvement upon the structure shown in the patent to Sterling T. Playford, No. 850,048, granted upon the 9th day of April, 1907. In constructing a device in accordance with the showing of the said patent, it has been found that the constituent blocks slip laterally, one upon the other, at their interengaging edges, thus causing the structure to leak, relative lateral movement between the blocks serving to throw a greatly increased strain upon the securing band which circumscribes the structure.

One object of the present invention is to devise a structure of the sort hereinafter described in which the constituent members are so engaged along their longitudinal edges that relative sliding movement between such members will be prevented.

A further object of the invention is to devise a device of this type in which relative movement between the members is prevented by the provision of a transverse head extended beyond a seat engaging the edge of one member, the securing band being applied to such a head, thereby to reinforce the same.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 shows the invention in perspective; Fig. 2 is a top plan of a pair of elements which are employed in the structure shown in Fig. 1; Fig. 3 is a section of the yoke to receive the ends of the securing band; and Fig. 4 is a transverse section showing a modified form of the invention.

The device herein disclosed is adapted to be employed in the construction of silos, culverts, water tanks and like structures.

Presupposing that the device is employed in the construction of a silo, the numeral 1 indicates a suitable foundation upon which the super-structure is placed. The super-structure consists of a plurality of similar plates, each plate being denoted generally by the numeral 2. Each plate 2 is fashioned in one edge with a concaved seat 3 and is equipped with an outstanding head 4 which overhangs the seat 3. Extended longitudinally of the head 4 is a reinforcing element 5 preferably taking the form of a rod. The opposite longitudinal edge of the plate 2 is convexed as indicated at 6 so as to fit in the seat 3 of an adjoining plate.

A series of plates 2 are interengaged in the manner shown in Fig. 1, the lower ends of the plates resting upon the foundation 1. Around the outside of the structure is extended a securing band 7, the securing band 7 being disposed transversely of the reinforcing elements 5 and engaging the outer faces of the heads 4. The securing band 7 is spaced apart from the plate-proper 2. The ends of the securing band 7 enter an arched yoke-member 8, and nuts 9 applied to the threaded ends of the band 7 and engaging the yoke 8 constitute a means for tightening the band about the silo. The intermediate portion of the yoke 8 is concaved as indicated at 10, in order to strengthen the yoke.

Owing to the fact that the heads 4 overhang the recesses 3 it will be seen that outward movement of the rounded edges 6 of the plates 2 will be prevented positively. A leakage between the longitudinal edges of the plates will thereby be prevented. The head 4 serves to reinforce one plate against strain imposed by the adjacent edge of an adjoining plate, and the head 4 is greatly strengthened by reason of the fact that the head 4 is reinforced by the element 5 which is located therein. The heads 4 are engaged by the band 7 and consequently outward movement of the interengaged ends of the plates 2 is prevented. Since the plates cannot move transversely upon each other at their point of juncture, the strain is distributed equally throughout the entire length of the band 7.

It is to be noted that each plate with its head 4 and its recess 3 constitutes a retaining member adapted to receive the rounded edge of an adjoining plate.

If desired, the structure may be modified to the extent indicated in Fig. 4. Under such circumstances, the retaining members

are of T shape and comprise a head 11 and a shank 12, the shank 12 being provided with opposed seats or recesses 14, adapted to receive the rounded ends of the plates. The plates denoted by the numeral 2 may be employed in Fig. 4, and, if desired, the plates 15, both edges of which are rounded as shown at 16, may be engaged in the seats 14 of the shank 12 of the retaining member 11. The head 11 of the retaining member is equipped, as hereinbefore described, with a longitudinally extended reinforcing element 17, the function of which has been pointed out hereinbefore. The securing band 18 is extended around the structure and engages the head 4 of the plate 2, the securing band engaging also the heads 11 of the retaining members. The structure hereinbefore described in connection with Fig. 1 for securing the ends of the band 7 is employed in connection with the band 18.

It will of course be understood that in practice the seams existing upon the outer face of the structure at the points indicated at 25 will be cemented.

Having thus described the invention, what is claimed is:

In a silo, a plurality of plates each having one of its longitudinal edges convexed transversely and being provided adjacent its other longitudinal edge with an outstanding rib, each plate having a longitudinal, concaved recess adapted to receive rotatably, the convexed longitudinal edge of an adjoining plate, the recess being located at the inner corner of the plate and the rib being disposed in overhanging relation to the recess; a band surrounding the silo, the band engaging the ribs and being spaced thereby from the body portions of the plates; and a reinforcing element embedded in each rib; the convexed edges being rotatable in the recesses in continuous bearing contact therewith, to alter the contour of the silo, and the ribs constituting means for receiving the tension of the band at points opposite to the reinforcing elements, when the contour of the silo is varied.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM A. HILLMAN.

Witnesses:
A. L. PAULSON,
A. PRUDEN KELLEY.