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GRAIN STORAGE TANK.

APPLICATION FILED AUG. 18, 1904.

Fig. 1.

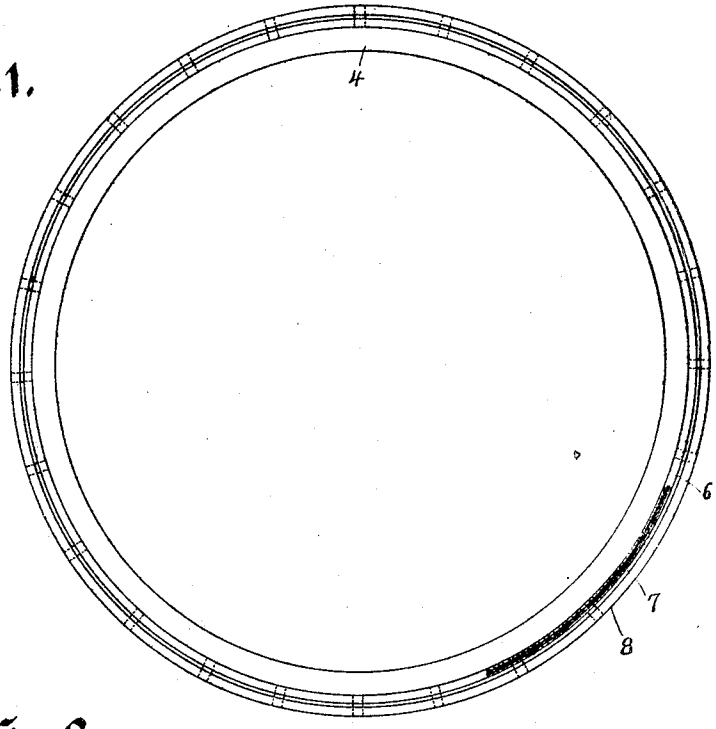


Fig. 2.

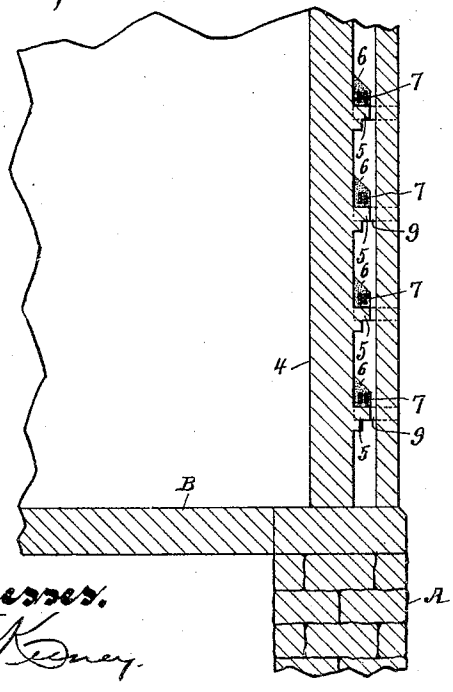
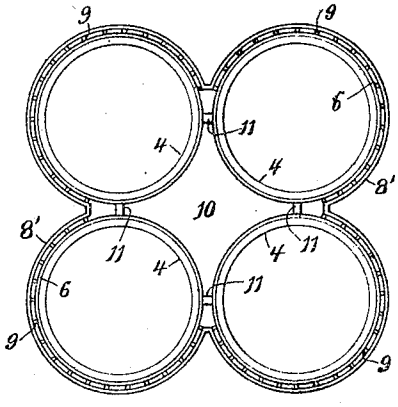


Fig. 3.



Witnesses.

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GRAIN-STORAGE TANK.

No. 796,669. Specification of Letters Patent. Patented Aug. 8, 1905.

Application filed August 18, 1904. Serial No. 221,195.

To all whom it may concern:

Be it known that we, ALLAN G. MATHER and WILLIAM L. DETHLOFF, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Grain-Storage Tanks, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

Our invention relates to an improvement in a tank adapted to receive and hold grain therein in storage. Tanks of the same general character made either of brick or of tile of special form have been used, but the tanks so constructed are expensive and have proved to be unsatisfactory.

The object of our invention is chiefly to provide means for suitably and sufficiently supporting or holding the wall of a tank in secure and permanent position by properly-arranged and suitable metal bands adequately supported in place on the wall of the tank and so fitted thereto by interposed suitable material as at all times to firmly and securely support all parts of the wall against outward movement under interior pressure, such bands being also so inclosed and protected as to prevent their corrosion or their expansion or destruction by heat and other objects incidental thereto.

An incidental object of our invention is by means of our improvements to provide for the construction of these storage-tanks by the use of ordinary bricks, which are comparatively inexpensive, thus providing a way and means by which a satisfactory storage-tank can be built at a comparatively moderate expense.

In the drawings, Figure 1 is a plan of the wall of a circular tank, in which form this class of tanks is usually constructed and with which our improvement is embodied, a section of the cement employed in our improvement being conspicuously indicated. Fig. 2 is a vertical section of a small fragment of the wall and floor of a tank with our improvement shown in connection therewith. Fig. 3 is a diagrammatic representation of a group of tanks in a permissible arrangement, each exterior tank having our improvement thereon.

In the drawings, A represents the foundation, and B the floor, of a tank. The wall of the tank 4, advisably in circular form, may be constructed of brick, and at frequent intervals on the exterior wall thereof corbels 5 are provided, which consist of projections or ledges formed on the exterior surface of the wall of the tank around the tank, which ledges or corbels are advisably formed by extending the brick of which the wall is built, either in one or more tiers, from the exterior surface of the wall. If more than one horizontal tier of brick is thus extended or projected to form the corbel, each tier above the lower one should project outwardly a little farther than the one immediately below it. This arrangement of the tiers of brick of the corbel is illustrated in the drawings by showing two such tiers of brick, the upper one of which projects farther than the lower tier. On these corbels entirely around the wall of the tank is placed a supply of cement 6 or other material of similar character and of equivalent value, and thereon and therein are placed one or more metal bands 7, which if more than one is used may be arranged one exterior to the other, as shown in Fig. 2. The cement 6 is packed between and entirely about these metal bands, so as to inclose them perfectly, and thereby when the cement is set, dried, and hardened to hold the bands, as in a stone case, against the corrosive action of the air or moisture and against the heating and expanding or burning effect of fire. Also the cement is packed tightly in between the inner surface of the metal band and the exterior surface of the tank, so as to fill the space between the band and the tank at all points completely and perfectly, thereby preventing any possible yielding or movement outward of any portion of the wall of the tank, the wall of the tank being held securely in place by the band or bands aided by the interposed cement.

Tanks of this character are desirably provided at a little distance therefrom with an exterior wall 8, which may also be of brick, and being of a thinner character than the main wall of the tank may be held thereto by bonding-brick 9, which are advisably extended to the exterior wall from the corbels 5.

When a considerable number of tanks are arranged in a group—as, for instance, as shown in Fig. 3—there may be formed an interior storage-tank 10 between and surrounded by the walls 4 of the circular tanks. These walls 4 of the circular tanks may be connect-

ed together at adjacent localities by interposed walls 11, whereby the walls of the tank 10 are made complete. In groups of tanks formed in this general way the exterior wall 8′ is carried around only on the outwardly-exposed portions of the walls of the several tanks.

In the drawings the bands are shown as being of flat metal; but the use of round rods or wire instead of these flat bands would be an obvious and entirely permissible form of bands quite within equivalent constructions.

While we have described our improvements as adapted for use in and with tanks for the storage of grain, it is not intended to limit the invention to use only with tanks for holding grain, but they are to be applied to tanks to be used for any other purpose for which tanks of this character are adapted.

It should be noted that the corbels, the bands, and the cement on the corbels and in which cement the bands are embedded are all exterior to the otherwise smooth-finished surface of the wall of the tank. By this construction the wall of the tank while being made as thin and inexpensive as possible is throughout its entire thickness supported by the exterior encircling bands, while no parts of the wall between the corbels project outwardly beyond other parts thereof. In other words, the wall is not thicker anywhere than it is inside the corbels and the bands, and this full thickness of the wall is supplemented by the binding effect of the bands about it exteriorly, and the corbels and the cement about the bands on the corbels, which are located at considerable distances apart vertically, are the only parts projecting beyond any portion of the otherwise smooth exterior surface of the tank-wall. This construction insures the greatest strength with greatest economy in construction.

What we claim as our invention is—

1. In combination, a tank-wall constructed of brick, a corbel built with and projecting as a ledge from the wall about the tank, cement on the corbel, and a metal band or bands embedded in the cement and with the cement supported on the corbel, the corbel, the bands and the cement being exterior to the plane of the exterior surface of the wall of the tank.

2. In combination, a circular brick tank-wall, a series of corbels one above the other built in and projecting from the wall, cement on the corbels, and metal bands embedded in the cement and with the cement supported on the corbels entirely exteriorly to the outer surface of the wall on and around which they are located.

3. In combination, a circular brick tank-wall, a series of corbels one above the other at a distance apart of the material of the wall built in and projecting from the wall, cement on the corbels, metal bands around the tank embedded in the cement, the corbels, the bands and the cement being outside the plane of the outer surface of the wall an exterior wall at a distance from but inclosing the tank-wall, and material of the character of that of the wall and the corbel projecting from the corbels bonding the exterior wall of the tank-wall.

In testimony whereof we affix our signatures in presence of two witnesses.

ALLAN G. MATHER.
WILLIAM L. DETHLOFF.

Witnesses:
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