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W. S. CLEVELAND & B. H. STAHR.

ELEVATOR OR STORAGE BIN CONSTRUCTION.

(Application filed Feb. 3, 1902.)

(No Model.)

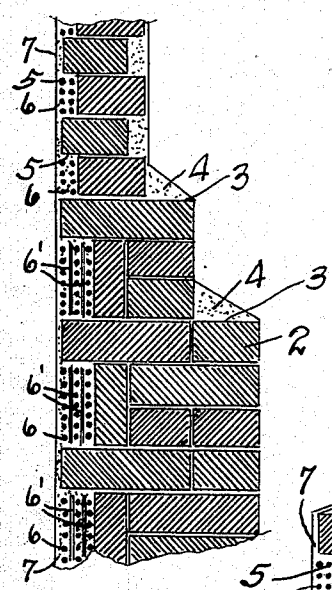


FIG 2.

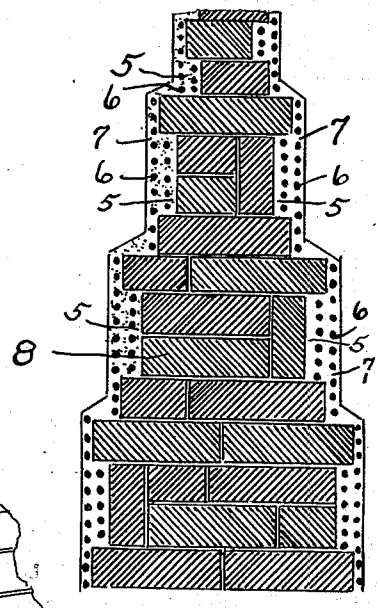


FIG.3

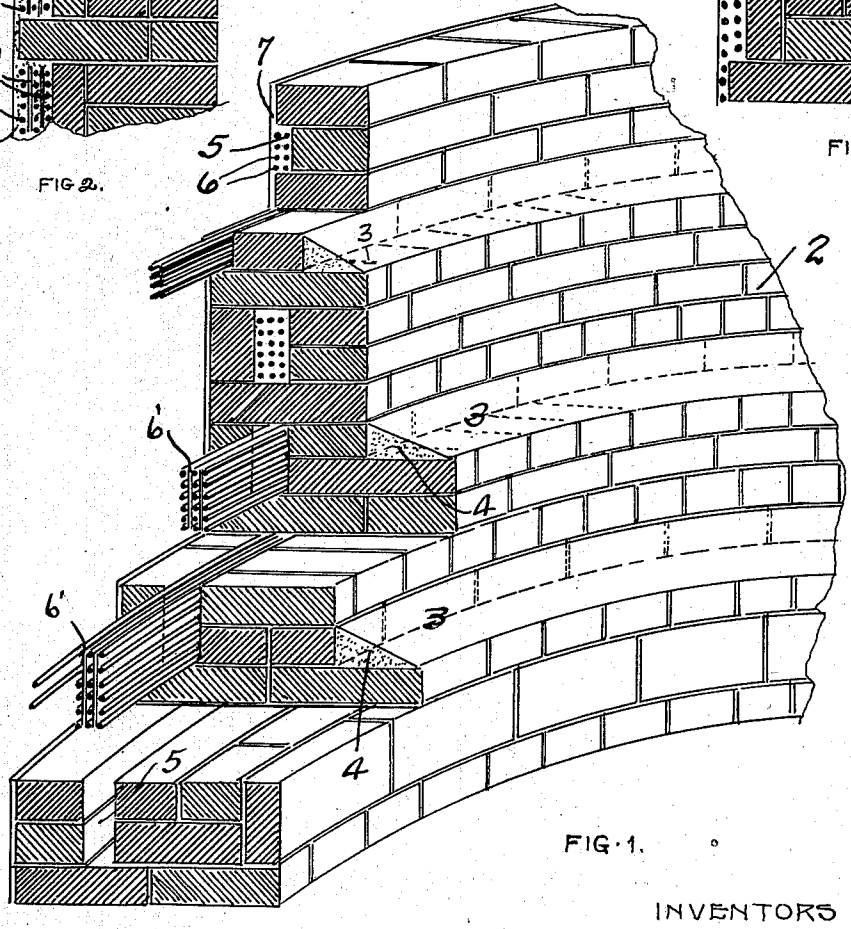


FIG. 1.

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WILLIAM S. CLEVELAND AND BERNHARD H. STAHR, OF MINNEAPOLIS, MINNESOTA.

ELEVATOR OR STORAGE-BIN CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 714,363, dated November 25, 1902.

Application filed February 3, 1902. Serial No. 92,277. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. CLEVELAND and BERNHARD H. STAHR, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Elevator or Storage-Bin Construction, of which the following is a specification.

The invention relates to walls for storage tanks or bins; and the object of the invention is to provide a wall composed, primarily, of the ordinary brick or tile blocks, and hence of economical construction, and one that is capable of resisting an extreme lateral or bulging strain.

A further object is to provide a structure that can be readily adapted for the walls of large or small bins and embodying features of construction that render it particularly desirable where a fireproof storage-bin of low cost and great strength and durability is to be erected. Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a detail perspective of a circular bin embodying our invention. Fig. 2 is a vertical section of the same. Fig 3 is a similar view of a straight wall.

In the drawings, 2 represents a wall composed of a series of common brick or tile blocks laid in mortar or cement in the usual way with a sufficient number of courses at the base to insure strength to withstand the bulging strain of the contents of the bin. As the wall is carried toward the top inside ledges 3 are formed at intervals by the gradual narrowing of the wall. Inclined faces may be formed on these ledges by a filling of cement 4. Beginning at the base of the wall we provide annular chambers or recesses 5 between the courses a certain distance from the inner and outer faces of the wall, and within these recesses we provide a series of wires 6, that are carried entirely around the wall and their ends lapped by each other or twisted or interlocked together in any suitable way. We prefer to provide spreaders 6′ between the wires to prevent them from being crossed. The wires 6 are preferably put under tension as they are laid in the recesses, and after being placed therein the spaces around the wires and the recesses are entirely filled with cement or mortar, which upon becoming hardened will bond or tie the wires together in one homogeneous mass, which will act as a hoop inclosing the walls of the bin and absolutely preventing any bulging of the same or displacement of the bricks or blocks. As shown in Fig. 1, we prefer to provide the annular chambers in the lower section of the wall between the courses of blocks; but on approaching the top of the bin, where the wall is thinner, the recesses are preferably nearer the outer face until the upper course is reached, where a recess is formed by providing blocks of different width and laying the wider blocks to lap by the outer faces of the narrower ones placed between them. Within the recess so formed the wires are bound around the wall and embedded in cement or mortar, as before. We prefer also to provide a coating or covering 7 of cement over the entire outer surface of the wall, which will effectually conceal the recesses on the outside thereof and the wires contained therein. We have shown a number of wires in each recess; but a greater or less number may be provided, if preferred, and these wires may be of any suitable size, according to the thickness of the wall and the strain to which it is likely to be subjected. Instead of wires we may use metal bands or straps or a wire mesh.

In Fig. 3 we have shown a straight wall 8, wherein the blocks are laid to form recesses at intervals upon each side. The wires are laid in these recesses and embedded and concealed by a covering of cement. This construction is employed in the inside or cross walls of a series of square bins.

The wires or bands within the recesses in the straight or curved walls of the bins will be embedded and concealed in the filling material and thoroughly protected from the weather. While we prefer to place the hoops under tension, we may in some instances find it sufficient to let their ends lap by each other

and be tied or bonded by the material wherein they are embedded. In forming the annular recess at the top of the cylindrical bin, where there is only one course of brick, we have shown blocks of different width to permit the convenient formation of the recess; but it will be understood that ordinary brick blocks of the same width may be employed in forming such a recess, it being necessary merely to arrange the blocks of an upper and lower course to lap by the outer face of the intermediate course.

The construction of bins that we have described is a very simple economical one and is capable of withstanding any degree of lateral pressure to which the wall of the bin may be subjected.

We claim as our invention—

1. A cylindrical storage-bin having annular recesses in its outer face formed by blocks of different width those of the same width lapping by the narrower intermediate blocks, wires or bands laid in said recesses under tension and serving as hoops to inclose and bind the wall, and a plastic filling material wherein said wires are embedded and concealed.

2. A cylindrical storage-bin having annular recesses in its outer face formed by lapping two or more horizontal rows of blocks by one or more intermediate rows, wires or bands laid in said recesses under tension and serving as hoops to inclose and bind the wall, and a suitable filling material.

3. A storage-bin having substantially horizontal recesses in its outer face, wires or bands laid in said recesses under tension and serving as hoops to inclose and bind the wall, and a filling material wherein said wires are embedded and concealed.

4. A storage-bin provided with a series of chambers or recesses formed by spacing or separating from each other the rows of blocks composing the bin-wall, and wires or bands laid within said recesses and inclosing the bin, said wires being separated from each other to expose a greater surface to the filling material, and a plastic substance wherein said wires are embedded.

In witness whereof we have hereunto set our hands this 28th day of January, 1902.

WILLIAM S. CLEVELAND.
BERNHARD H. STAHR.

In presence of—
RICHARD PAUL,
M. C. NOONAN.