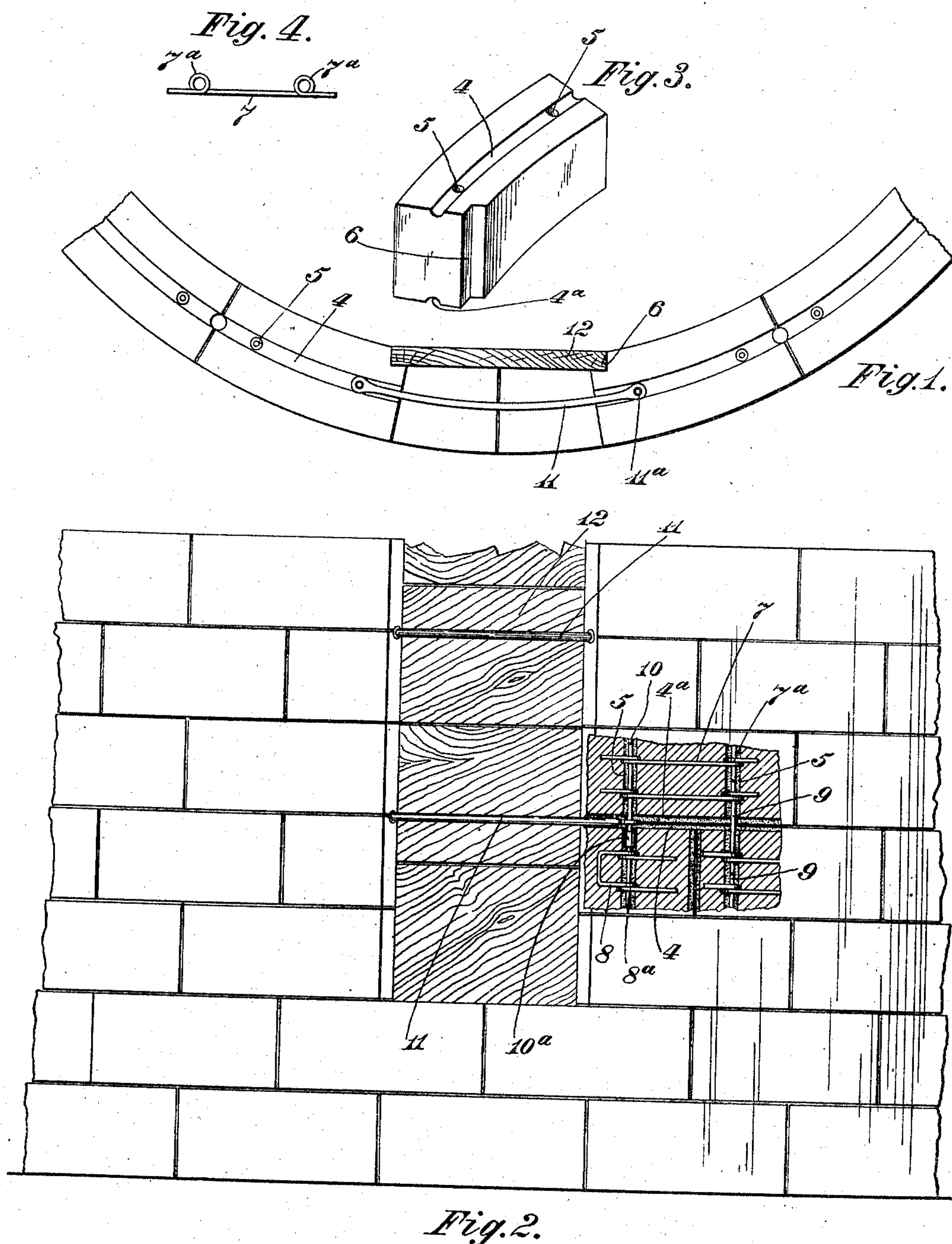


C. A. PERFECT.
STORAGE STRUCTURE WALL.
APPLICATION FILED JAN. 20, 1908.

967,426.

Patented Aug. 16, 1910.



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UNITED STATES PATENT OFFICE.

CHARLES A. PERFECT, OF SUNBURY, OHIO.

STORAGE-STRUCTURE WALL.

967,426.

Specification of Letters Patent.

Patented Aug. 16, 1910.

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To all whom it may concern:

Be it known that I, CHARLES A. PERFECT, a citizen of the United States, residing at Sunbury, in the county of Delaware and State of Ohio, have invented a certain new and useful Improvement in Storage-Structure Walls, of which the following is a specification.

The object of this invention is to provide an improved wall for storage buildings, especially silos, cisterns, bins and the like, whereby such wall is easily and economically erected and is of great strength and durability.

The invention is embodied in the construction hereinafter described, the invention not being confined to the precise forms of parts shown in the accompanying drawings and herein specifically set forth.

In said drawings—Figure 1 is a top plan view of a section of a silo wall including the doorway construction; Fig. 2 is a side elevation projected from Fig. 1 with parts in section to illustrate details; Fig. 3 is a perspective view of the larger block used in the construction; Fig. 4 is a plan view of one of the wires before embedment in the block to show the loop construction.

Like characters of reference in the different views designate corresponding parts.

The blocks are of arc form, and have in their upper and lower horizontal faces longitudinal grooves 4 and 4^a to receive cement when the blocks are laid and vertical perforations 5. The whole blocks, so called, are about twice as long as they are thick and wide. The half blocks are employed to permit the forming of the doorway and maintain the breaking of joints in silo construction. The blocks are formed of cement molded in a suitable mold to impart substantially the forms shown. The blocks of both sizes employed at the doorway have at one of their inner corners angular grooves 6. The larger blocks have completely embedded in them short pieces of wire 7 bent to form loops 7^a alining with the holes 5. These short pieces of wire are spaced about equally distant from the upper and lower faces of the block and they are separated from each other by a space about equal to that each is from the adjacent horizontal face of the block. The smaller or half block has completely embedded in it a short U-shaped piece of wire 8 having its legs bent to form loops 8^a, said loops being lo-

cated to coincide with the vertical hole in such block. The half blocks also have in one of their inner corners grooves like that designated 6 in Fig. 3.

In erecting the wall of these blocks they are laid, as shown in Fig. 2 and, as before indicated, to break joints, the half blocks alternating with the whole blocks at the side of the doorway. After a course of blocks has been laid the vertical holes in the blocks are filled with soft moist cement, and a short piece of wire, as seen at 9, is inserted in each hole, so that a half of it extends into the block while the other half projects above the block. When the next course of blocks is laid the projecting portions of the wires 9 enter the vertical openings of the superposed blocks about half way, and, when the soft cement is subsequently put into the holes of said superposed blocks and the cement has hardened, the two courses become tied together and locked from horizontal movement on each other by reason of the engagement of said short wires 9 with the blocks at the point where the loops of the horizontal wires occur. The wall is further strengthened against horizontal strains by reason of the laying cement engaging the grooves 4 and 4^a so that no horizontal protrusion of the ends of the looped embedded wires from the ends of the blocks is necessary. The protrusion of such wires is deemed objectionable because it renders the blocks troublesome to transport and handle and they are exceedingly difficult to properly connect and lay because of unavoidable distortion of such protruding wires. This process is repeated all the way up except that at the top the wires 9 need not be left standing.

In order to strengthen the wall at the doorway I employ sections of rod or pipe 10 united by suitable coupling devices, as seen at 10^a, so as to form a practically continuous rod that passes through the loops of the embedded wires from the bottom to the top of the silo where the rod is suitably secured.

In order that the user may have easy access to the ensilage from the top to the bottom, I provide a ladder consisting of rungs 11 each provided with holes 11^a at their ends through which the rods 10 are passed as fast as the wall is erected. These rungs can be located at convenient intervals, as, for example, between the horizontal joints of the alternate courses, or as shown in Fig. 2. These rungs, it will be observed, tie to-

gether the opposite edges of the doorway or opening in the wall and therefore securely brace the wall at its otherwise weakest point.

In erecting the wall cement or mortar can be laid between the several courses and the grooves in the horizontal faces 4 and 4^a co-operating therewith help to bind the courses from dislocation.

In use the opening or doorway of the silo construction is closed as fast as the ensilage is filled in, by means of wooden blocks cut to fit in the vertical grooves 6 at the inner side of the opposite edges of the wall, said blocks being held in place by the outward pressure of the stored ensilage. As the ensilage is removed from the top of the silo these blocks can be readily taken out and stored away for reuse.

What I claim and desire to secure by Letters Patent is:

1. A storage structure wall, consisting of a series of horizontal courses of superposed concrete blocks, said blocks each formed of cement containing completely embedded therein a horizontally arranged wire provided with a loop, each of said blocks also provided with a vertical perforation coinciding with the opening of the loop of the wire therein, combined with integral rods in said perforations, said rods extending through the line of junction of two vertically adjacent blocks and through the loops of the wires of such two vertically adjacent blocks, said structure having a vertical doorway formed by alternating the said blocks at the side thereof with half-blocks, continuous rods passed through the loops of said blocks adjacent the doorway and rungs engaged by said continuous rods.
2. A storage structure wall consisting of horizontal courses of vertically adjacent concrete blocks, said wall being formed to provide a vertically extending doorway therein, said wall at the doorway formed by

alternately superposed whole and half blocks, substantially as described, each of said blocks formed with cement-receiving grooves in its upper and lower horizontal faces and with a vertical perforation, looped wires completely embedded in said whole blocks with their loops coinciding with the perforation therein, and a U-shaped wire embedded in said half blocks, said last-named wires provided with loops in their legs, and said legs being horizontally arranged and completely embedded in said blocks, and the loops of said legs coinciding with the vertical perforation in said blocks, combined with rods extending between vertically adjacent blocks and into the loops of the wires embedded therein, substantially as described.

3. A storage structure wall consisting of horizontal courses of vertically adjacent concrete blocks, each formed with cement receiving grooves in its upper and lower horizontal faces, said blocks provided with vertical perforations and with horizontally arranged wires completely embedded in the blocks, said wires each containing a loop coinciding with the vertical perforations, and short vertical rods in said perforations in the main body of the wall, said rods extending between vertically adjacent blocks and into the loops of the wires embedded therein, said wall constructed to form a doorway vertically thereof, combined with ladder rungs, having perforations at their ends, said rungs supported between the sides of the doorway, and continuous rods extending through the rungs, and the perforations and wire loops of the blocks forming the doorway.

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