

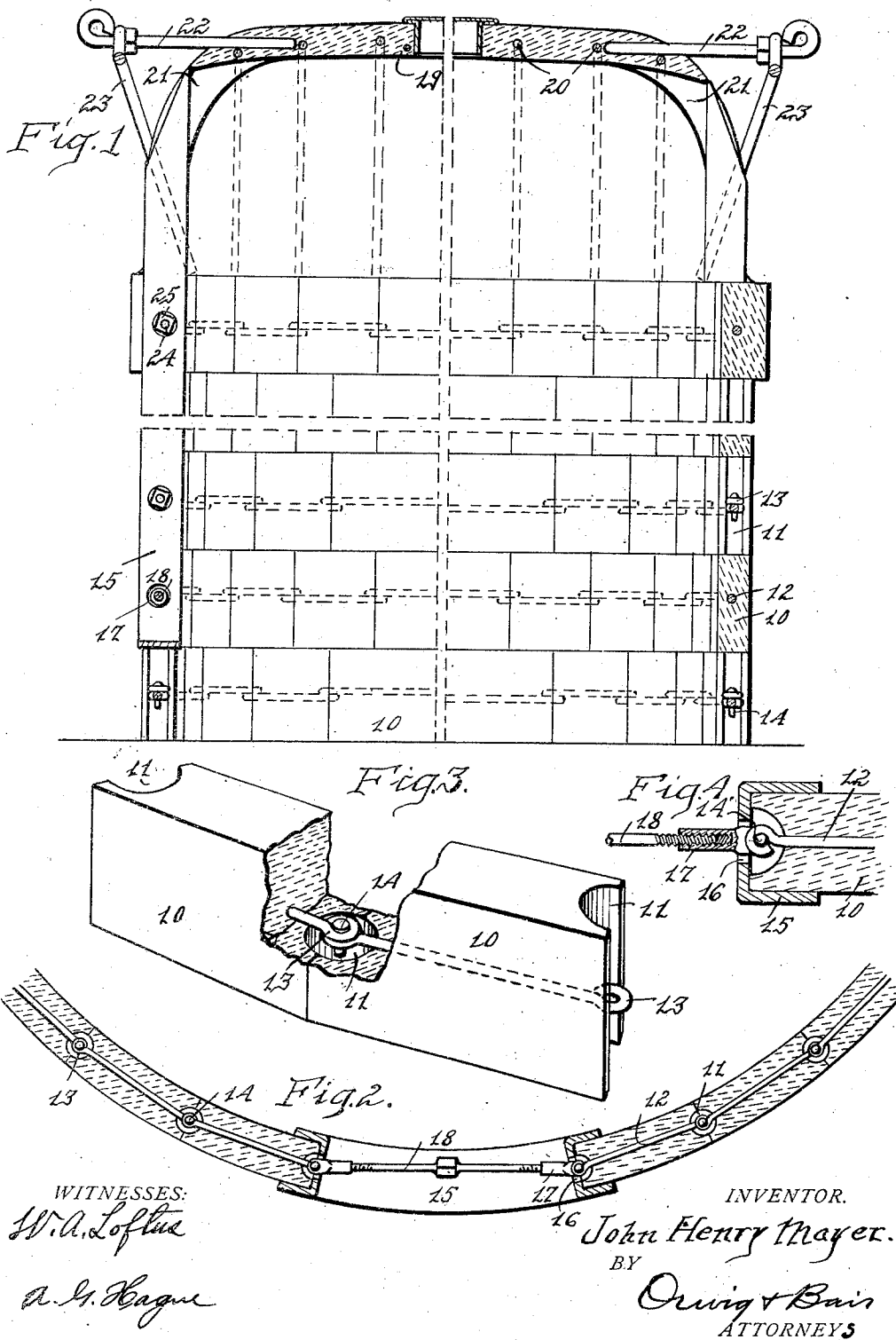
J. H. MAYER.

SILO.

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1,094,080.

Patented Apr. 21, 1914.



UNITED STATES PATENT OFFICE.

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SILLO.

1,094,080.

Specification of Letters Patent.

Patented Apr. 21, 1914.

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To all whom it may concern:

Be it known that I, JOHN HENRY MAYER, a citizen of the United States, residing at Humboldt, in the county of Humboldt and State of Iowa, have invented a new and useful Silo, of which the following is a specification.

My invention relates to the construction of buildings, tanks, etc., and more particularly to silos, and to the means employed for reinforcing the same.

My object is to provide an artificial stone building block having a reinforcing rod permanently cast therein, and provided at each end with a concave groove, so that when the blocks are laid with their ends abutting, in a horizontal tier, a circular opening is formed at the junction of each two blocks, through which opening access may be had for the purpose of securing the adjacent rods together, and at the same time by filling the opening with liquid cement or other adhesive substances, the blocks may be formed into a permanent unit.

A further object is to provide in connection with a circular silo formed of this class of blocks, and having a continuous vertical door way, a simple and inexpensive means for connecting each series of reinforcing rods across the door opening, to thereby prevent collapse or bulging of the silo.

My invention consists in certain details in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim and illustrated in the accompanying drawings, in which:

Figure 1 shows a vertical, central sectional view of a silo built in accordance with my invention. Fig. 2 shows a horizontal sectional view of a portion of the silo taken across the door way. Fig. 3 shows a detail view of two of my blocks, part of the blocks being broken away to show the method of connecting the reinforcing rods; and Fig. 4 shows a detail sectional view illustrating the means for connecting the reinforcing rods together at the door way.

My improved block may be molded or formed of cement, concrete, clay, or the like, and consists of a substantially rectangular body portion 10, at each end of which is formed a semi-circular groove 11. Extending

longitudinally through the center of each block, and cast therein, is a reinforcing rod 12, provided at each end with eyes 13, each of the eyes being in position within the adjacent groove and extending substantially one-half its diameter beyond the edges thereof.

In constructing a silo, the blocks are laid in horizontal tiers with their grooved ends abutting, thus leaving at the junction of each two blocks a circular opening, in which is contained the adjacent eyes of the reinforcing rods of the abutting blocks. These eyes are positioned one over the other so that their openings register, and through the registered opening is inserted a bolt or pin 14, the rods being thus permanently held together. The circular opening is then filled with a liquid cement for the purpose of permanently uniting the abutting blocks. Tier upon tier of blocks are laid in a similar manner, and arranged to break the joints, as shown, until the desired height is reached. In the door way, vertical strips 15 preferably of channel iron are used for the jambs. These strips are provided with openings in line with the reinforcing rods of the blocks. Connected by means of a drop pin to the extending eye of the reinforcing rod of each contiguous block is a screw-threaded socket 17. This socket is arranged to extend through the adjacent opening 16 in the jamb, and into it is screwed a brace rod 18 extending horizontally across the door opening. The opposite end of the brace rod is connected to the free end of this same series of reinforcing rods in a similar manner, except that the screw threads on the socket and the end of the rod are cut in opposite directions from that of the other end, so that by turning the rod 18 in the proper direction, the reinforcing rods will be drawn together to form a complete circular band about the silo, and held in rigid position. Obviously a continuous vertical opening is left between the door jamb and contiguous wall, and this opening is likewise filled with cement. When the wall has been built to the desired height a suitable roof or cover may be placed over the top thereof, and in the present instance I have shown a roof made of concrete and reinforced by the rods 20. This form of roof must necessarily be cast on the top of the wall and forms must be set up in

position for this purpose. In constructing this form of roof I preferably provide openings 21 at opposite sides of the roof for the admittance of silage, and these openings when not in use for this purpose may be provided with suitable windows, thus leaving means of ingress and egress from either side of the silo, and at the same time is provided a weather proof top for the silo. Immediately over each of the openings 21 and embedded in the concrete of the roof is an arm 22 provided with brace rods 23, for the purpose of supporting the ensilage cutter carrier when the silo is being filled.

I have found in practice that it is only necessary to connect the ends of each alternate series of the reinforcing rods together, and therefore I have shown in Fig. 1 a short rod 24, alternating with the socket 17. On this rod is screwed a nut 25 flush against the door jamb.

The brace rods 18 extending across the door way may be used as a ladder and also for securing the sectional doors in place.

Obviously the reinforcing rods extending through each tier of blocks will when connected across the door way not only prevent outward bulging of the silo but in addition they will hold the blocks in place secure against inward collapse of the building.

The grooves in the blocks, forming circular openings when placed together, afford a highly advantageous method of uniting the blocks together when filled with cement.

I claim as my invention—

In a silo having a vertical door opening, a plurality of blocks having grooves formed in their ends, and arranged in superposed courses with their grooved ends abutting, a reinforcing rod in each of said blocks provided at each end with an eye, the adjacent eyes of the rods in abutting blocks being contained within the opening formed by the junction of the blocks, means for connecting said eyes together, door jambs provided for the door opening, each jamb having openings therein in line with the ends of the rods in the contiguous blocks, screw threaded sockets connected to the free ends of each alternate series of reinforcing rods, a plurality of rods extending across the door opening each provided at its ends with oppositely arranged screw threads to enter opposite sockets on the same series of reinforcing rods, and screw threaded rods connected to the free ends of the remaining series of reinforcing rods, each of said rods extending through the adjacent opening in the door jamb, and a nut for each of said screw threaded rods in position thereon against the door jamb, as and for the purpose stated.

Des Moines, Ia., Feb. 24, 1913.

JOHN HENRY MAYER.

Witnesses:

S. G. WINNE,
J. E. BARKER.