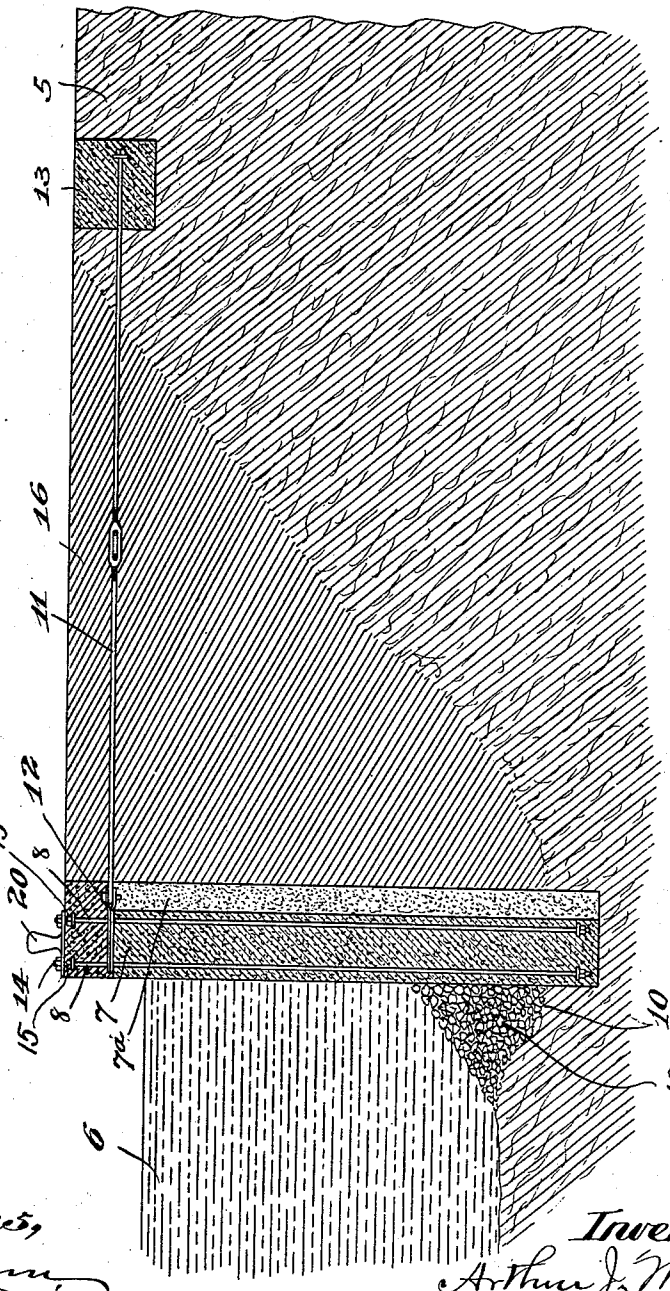
A. J. MASON.

METHOD OF BUILDING CONCRETE DOCK WALLS.

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METHOD OF BUILDING CONCRETE DOCK-WALLS.

1,083,289. Specification of Letters Patent. Patented Jan. 6, 1914.

Application filed January 18, 1908. Serial No. 411,494.

To all whom it may concern:

Be it known that I, ARTHUR J. MASON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Methods of Building Concrete Dock-Walls, of which the following is a specification.

This invention relates to the art of docks or piers, and pertains more especially to that class or type wherein the vertical wall or palisade constituting the front of the dock and alongside which ships are tied up is constructed of some form of masonry. In the erection of such masonry dock and pier walls it has heretofore been generally customary to secure an adequate foundation for the wall by first driving a series of piles to a point below the water level, for which purpose, as well as for the purpose of building that portion of the wall lying below the water level and resting on the piles, it has been necessary to erect a coffer-dam or caisson. It is evident that the erection of dock walls and palisades in this manner involves a large expense both in respect to the materials used and their method of erection and in respect to the preliminary operations involved in the building of the necessary temporary accessories. Furthermore, walls built by this method necessarily require a considerable period of time in building; and, even when constructed in a thorough and substantial manner, sometimes involve serious defects through undue settling of the foundation and consequent cracking and fracture of the superstructure.

The main object of my present invention is to provide an improved method of erecting a concrete dock wall or palisade characterized by increased simplicity of method of building, and which shall represent a marked economy both in expense of construction and in the amount of time required for the same.

The method of operation involved in the present invention consists, substantially, of first molding the monoliths, then erecting the wall from one end toward the other by setting up said monoliths successively side by side, as by means of a suitable derrick, and temporarily subjecting each monolith, after it has been positioned, to the weight of the next succeeding monolith to sink the same to its permanent place in the wall, and finally anchoring landward the upper end of the wall thus formed. The monoliths being, in practice very heavy structures, the described method of sinking and positioning them is abundantly ample for the purpose, and has the further advantage that all the monoliths of the series are subjected to the same sinking pressure, and consequently a wall of substantially uniform stability throughout is produced. Of course, owing to variations in the character of the soil underlying the series of monoliths, they will often be sunk to slightly varying depths, thus leaving a rough or jagged top line, which, however, may be covered by a capping which gives a level and straight finish to the wall as a whole.

In the accompanying drawing, which is a cross-sectional view through the wall, bank or shore, and intermediate filling, I have illustrated one practical form which a wall erected under my present method may take, the drawing also illustrating some further details, such as the means for anchoring the upper end of the wall.

Referring to the drawing, 5 designates the bank or shore line along which the wall is to be erected, and 6 the body of water abutting against the same.

7 designates each of the series of monoliths, which latter are molded concrete structures of uniform length representing substantially the full height of the wall, preferably of rectangular cross section and, for greater strength, preferably having embedded therein longitudinal reinforcing rods 8, these latter projecting some distance above the upper ends of the monoliths and screw-threaded at their upper ends for a purpose hereinafter explained. For greater facility in sinking the monoliths the lower ends thereof are given a wedge-shaped or chisel-like formation transversely of the wall. These monoliths are set with a derrick, their lower ends being preferably placed in a rough trench indicated at 10, which may be dredged. They are set in succession from one end of the wall to the other; and each monolith, when set, will by its great weight cause the lower cutting edge thereof to sink somewhat into the bottom of the trench, and it is then loaded temporarily with the next monolith so that it will, for a short

time at least, have imposed upon it a very great load which, from the nature of the construction, will exceed any load which will thereafter be placed upon it. By forming the lower or penetrating end inclined or of a chisel-shape, each monolith has a disposition, when set, to crowd snugly against the one last set, thus producing a tight wall.

At suitable intervals throughout the longitudinal extent of the wall its upper end is anchored landward by tie-rods 11, one end of which is connected to the upper end of certain of the monoliths by any suitable means, such as a clevis 12 that may conveniently be secured by the projecting ends of the reinforcing rods 8 passed therethrough, while the other end of each tie-rod is embedded in a concrete or other anchor 13 sunk in the upper portion of the bank 5.

The top of the wall is finished off by a cement or concrete cover or capping 14 molded thereon over the upper projecting ends of the reinforcing rods, which latter are cut off at the proper points and supplied with nuts 15, either counter-sunk or embedded in the upper face of the capping, whereby the latter is strongly tied to the series of monoliths.

A further detail feature which contributes to the stability and perfection of the structure consists in making certain of the monoliths at intervals somewhat wider landward, than the rest, as shown at 7^a, whereby said wider members secure a lateral rest or abutment against the filling 16 interposed between the inner side of the wall and the sloping face of the bank 5, which checks any tendency of the latter to lean either way in the direction of its length.

The security of the lower end of the wall may be enhanced by applying a footing of broken rock, rubble, or any similar material, in that portion of the trench lying in front of the wall, as shown at 19.

The concrete capping 14, besides securely binding together all the individual monoliths, also serves as a support and anchor for bollard-posts 20 and similar operating devices employed on the dock front.

I claim:

1. The method of building dock-walls, which consists in molding a series of concrete monoliths, setting up said monoliths successively side by side to form the wall, temporarily subjecting each monolith after it has been positioned to the weight of the next succeeding monolith to sink the same to its permanent place in the wall, and anchoring back the upper end of the wall, substantially as described.

2. The method of building dock-walls, which consists in molding a series of concrete monoliths, setting up said monoliths successively side by side to form the wall, temporarily subjecting each monolith after it has been positioned to the weight of the next succeeding monolith to sink the same to its permanent place in the wall, bonding the upper ends of the series of monoliths together, and anchoring back the upper end of the wall, substantially as described.

ARTHUR J. MASON.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."