(No Model.) 2 Sheets—Sheet 1.

E. S. WALSH.

CONSTRUCTION OF DRY DOCKS.

No. 561,458. Patented June 2, 1896.

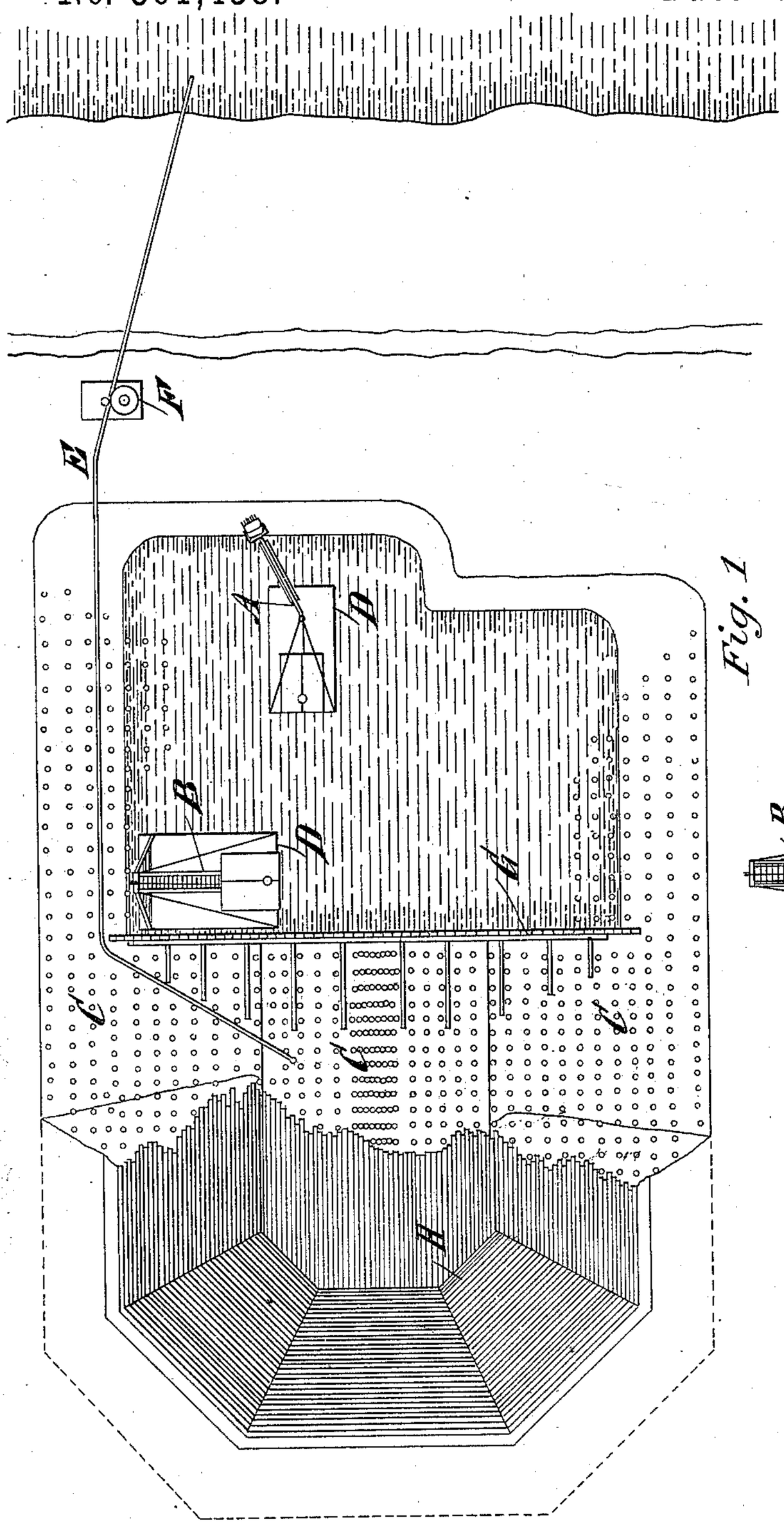

Fig. 1

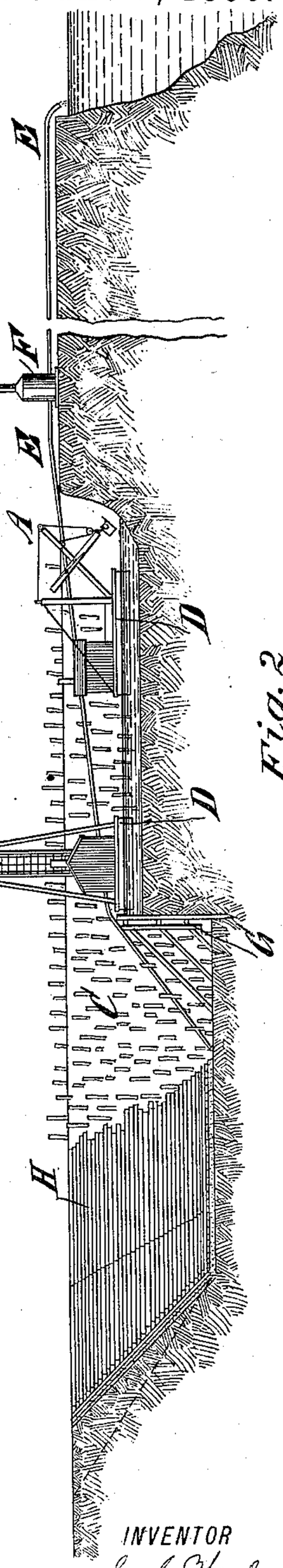

Fig. 2

WITNESSES:

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J. Fred. Acker

INVENTOR

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(No Model.) 2 Sheets—Sheet 2.

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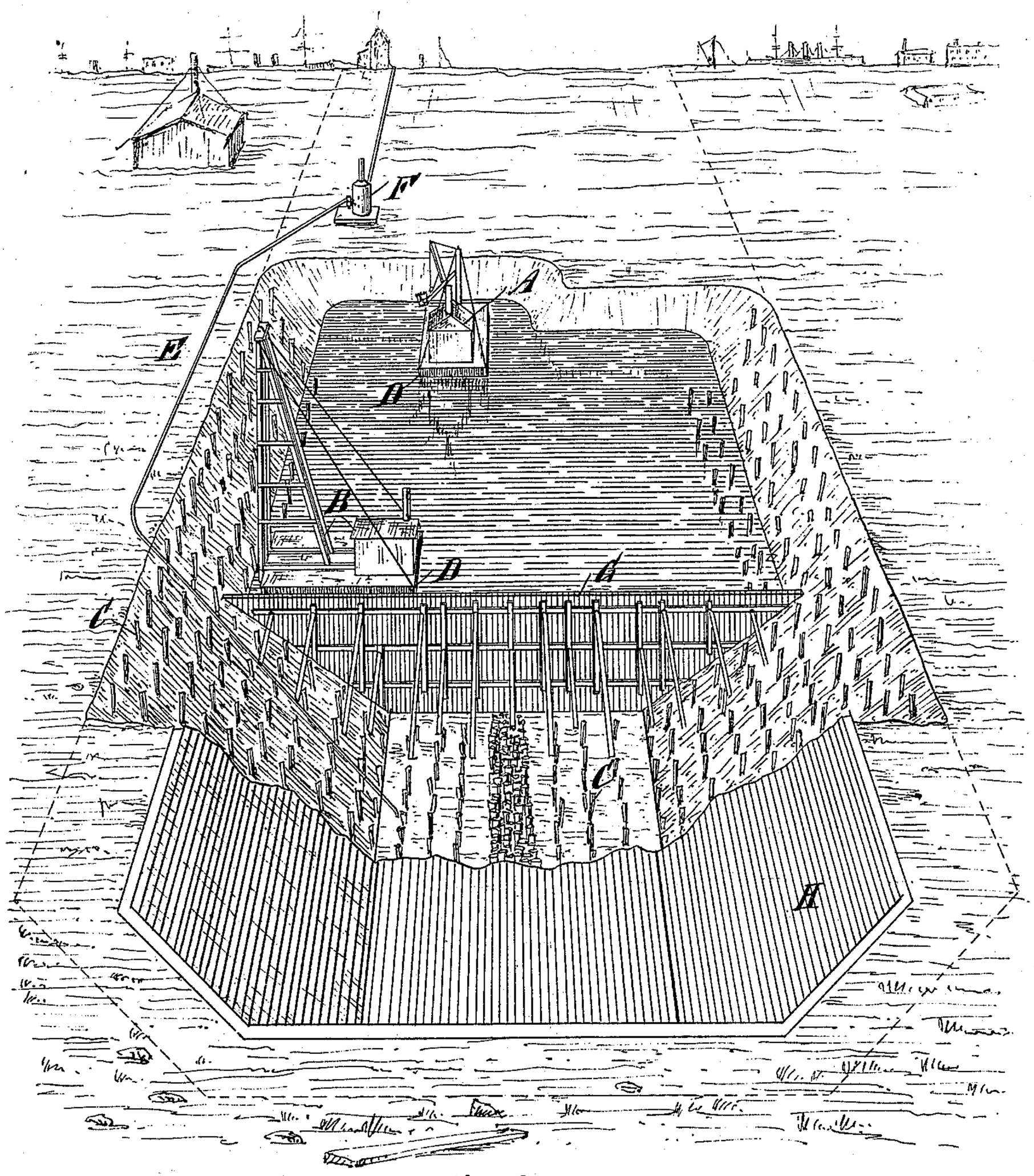

Fig. 3

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UNITED STATES PATENT OFFICE.

EDWARD S. WALSH, OF NEW YORK, N. Y.

CONSTRUCTION OF DRY-DOCKS.

SPECIFICATION forming part of Letters Patent No. 561,458, dated June 2, 1896.

Application filed January 3, 1896. Serial No. 574,241. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. WALSH, of New York city, in the county and State of New York, have invented a new and useful Improvement in the Construction of Dry-Docks, of which the following is a full, clear, and exact description.

My invention relates to an improvement in the construction of dry-docks and like structures; and the object of the invention is to provide a means whereby the excavating machinery or apparatus, together with the pile-driving apparatus, may be much more expeditiously and conveniently handled during the progress of the work than heretofore, and consequently lessening the expense and labor in creating such structures.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a partially-constructed dry-dock excavated in accordance with my invention. Fig. 2 is a longitudinal section through the dry-dock shown in Fig. 1 and likewise through the solid ground intervening the dry-dock and the stream of water with which it is connected; and Fig. 3 is a perspective view of a partially-completed dry-dock, illustrating the application of the invention to the excavation of the same.

In carrying out the invention the work of excavating is commenced, as usual, a predetermined distance from the body of water with which the dock is to connect; and in the commencement of the work of excavating a dredge A or other form of excavating mechanism is employed, or the initial work may be manually performed. The sides of the excavation are given the proper angle of repose, and a pile-driver B, of any approved type, is employed in connection with the excavating-machine to drive the piles C as the work of excavating proceeds.

When the excavation is sufficiently deep to strike a vein of water, the water is permitted to accumulate in the excavation, and the pile-driving machine, together with the excavating-machine, are mounted on floats D, whereby the said machines will be supported on the surface of the water, and therefore may be expeditiously and conveniently carried from point to point in the excavation, admitting of the driving of the piles and the continuance of the excavation, the work being accomplished at considerably less expense than under the old method of dry excavating. At any time during the progress of the work water may be supplied to the excavation from any suitable source.

The piles are driven in the sides and at the bottom of the excavation while the machines are supported on the water. After all of the piles have been driven and the work of excavating has proceeded as far as possible with the aid of machinery the water is drawn from the excavation through a suitable line of piping E, connected with a pump F of any approved construction, as shown in the drawings. Prior to the withdrawal of the water, however, a partition G of sheet-piling is erected at the forward end of the excavation, and this partition is carried upward to a height which will be above the level at which the water will enter the excavation, as shown in Fig. 3.

The machines—namely, the dredger and pile-driver, or any other apparatus employed in the preparatory work of the dry-dock—will be transferred to the surface next to be excavated. The transfer may be made by lifting the machines bodily through the medium of a derrick, or by hydraulic jacks, or by other approved means to be hereinafter stated.

The work in the next section to be excavated may have proceeded manually before the machines are transferred to that section, and after the transfer of the machines the work is carried on in like manner as described in connection with the first section.

The sheet-piling of the partition G may be lowered as the work of excavation in the second section progresses, or this partition may be allowed to remain until the work of excavating and pile-driving has been fully accomplished. In this manner the dry-dock or other work of like character is constructed in sections until the stream at which the dry-dock is located is reached, and as the work of

excavating and pile-driving is accomplished in each section the sheathing H is laid and properly braced, and, in fact, each excavated section may be substantially finished while the work of excavating is being carried on in the next section.

It will be understood that after the work of excavating and pile-driving has been accomplished in each section, and prior to the laying of the sheathing H, the various piles are properly cut off to the required grade, and the finishing of the sides and the bottom of the excavation is preferably manually performed.

Instead of hoisting the machines from one section of the excavation to the other, they are preferably floated in the transfer, and this may be accomplished as follows: When one section is dredged, the excavation in the next section will be sufficiently deep to receive a supply of water from the section nearly finished, and the dredge may be simply floated to place to continue the work. When the work of pile-driving is finished in one section, the water in that section will be on a level with the next section to be operated upon, and the pile-driver can also be floated to place. When the pile-driver is in the next section, it is used to drive the sheet-piling for the section it has left. When this is accomplished, the water is pumped from the section from which the machines were transferred. When the last section is reached preparatory to providing for the gate, the machines used in the work are transported to a convenient portion of the dock, and are floated out into the stream as the dock is flooded.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The herein-described method of constructing dry-docks and similar excavations, by the employment of machines necessary for the work and capable of floating, which consists first in dry excavation, next supplying water to the excavation for the purpose of floating the said machinery, and finally erecting a partition at one end of the excavation when completed, as and for the purpose specified.

2. The herein-described method of constructing dry-docks and like works, which consists in excavating the same in sections, the initial operation in each section being that of dry digging, next supplying water to the excavation, thereby floating the excavating and driving machinery, transferring the machines from the fully-excavated section to the next section, next erecting a partition or dam at one end of the completed excavation beyond which partition the work is to be carried on; and finally withdrawing the water from the completed excavation, substantially as and for the purpose specified.

3. The herein-described method of constructing dry-docks and similar excavations by the employment of machinery necessary for the work and capable of floating, which consists first in dry excavation, next supplying water to the excavation for the purpose of floating said machinery and erecting a partition in the excavation during the progress of the work, substantially as described.

EDWARD S. WALSH.

Witnesses:
JOHN LANE,
WM. H. JENKS.