

JOHN E. WALSH.

Improvement in Cofferdams.

No. 120,352.

Patented Oct. 24, 1871.

Fig. 1.

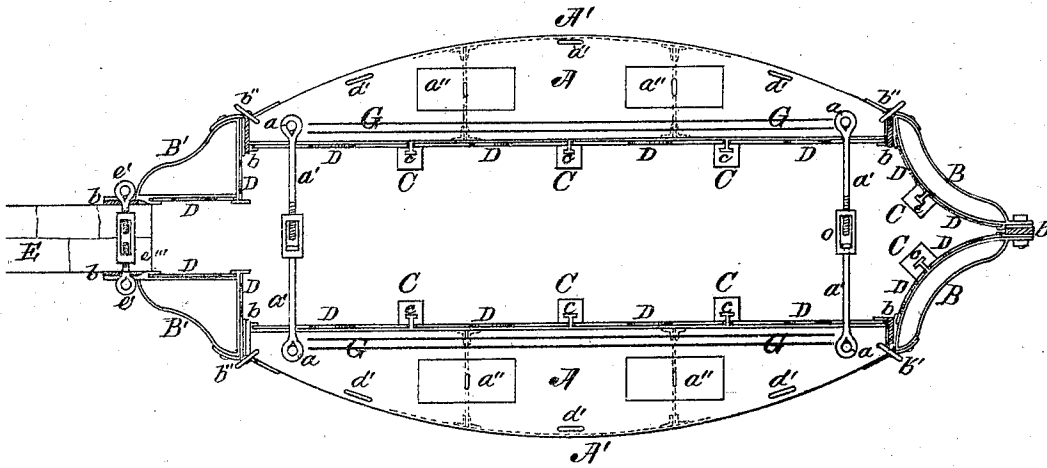
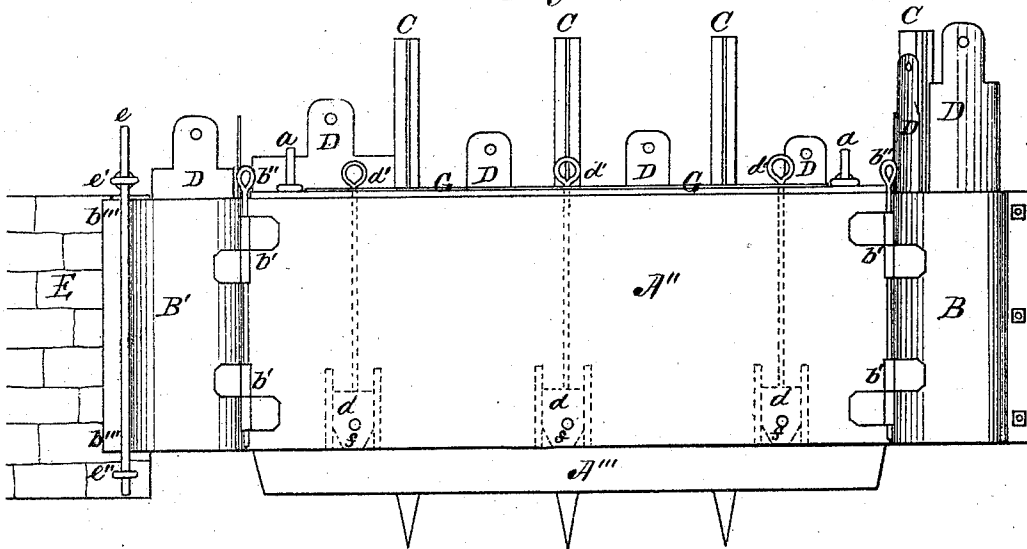


Fig. 2.



Witnesses:

J. C. Brecht
Chas. P. Norton

Inventor:

John E. Walsh
by N. Crawford atty.

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Fig. 3.

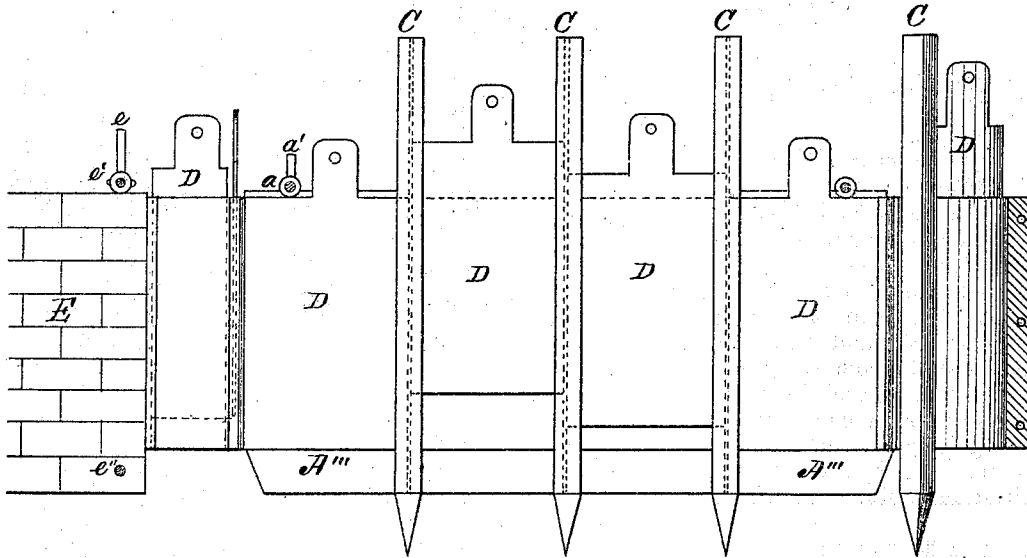
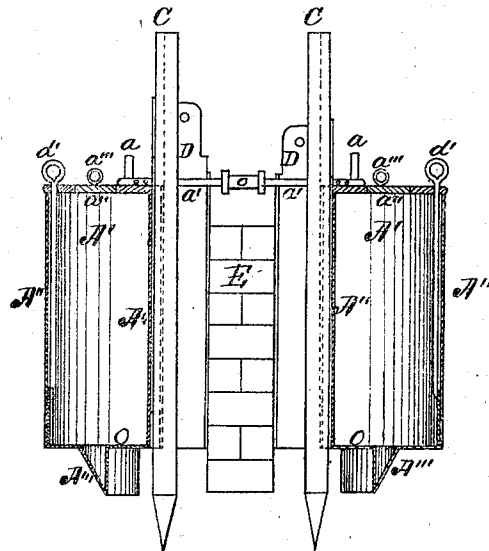


Fig. 4.



Witnesses:

T. C. Brecht.
Geo. C. Pulton

Inventor:

John E. Walsh
by N. Crawford atty.

UNITED STATES PATENT OFFICE.

JOHN E. WALSH, OF NEW YORK, N. Y.

IMPROVEMENT IN COFFER-DAMS.

Specification forming part of Letters Patent No. 120,352, dated October 24, 1871.

To all whom it may concern:

Be it known that I, JOHN E. WALSH, of the city, county, and State of New York, have made certain Improvements in Coffier-Dams, of which the following is a specification:

The object of this invention is to improve the coffer-dams patented to me January 24, 1871, Nos. 111,156 and 111,157, and that dated April 4, 1871, No. 113,374; and it consists in the construction of some of the parts and their arrangement with other parts to form a complete coffer-dam.

In the drawing, Figure 1 represents a top view of the coffer-dam; Fig. 2, a side view of same; Fig. 3, a longitudinal section; and Fig. 4, a transverse section.

A is the deck or floor of the top of the parts that form the dam. A' A' are the two parts made of metal plates, and strengthened by lateral cross-beams that are bolted to angle-irons that are secured to the metal plates that form the hub or body of the dam. The sections or parts A' A' have water-tight metal bottoms O O, and are divided into compartments or chambers of such dimensions as may be desirable or convenient. A'', Fig. 2, represents the metal sides of the hull or sections of the dam, which can be constructed of any desirable height or length to suit the depth of water or kind of work to be done within the dam. B B are the curved or ogee-shaped doors or gates, which are constructed of metal plates, the same as the sections of the dam, double, and having a space between the outer and inner plates with a metal bottom, which forms a chamber or compartment like that in the hull or body of the sections. B' B' represent similar doors or gates to B, but are constructed to receive the wall that has been built within the dam, and to be clamped thereto in the same or in a similar manner to that described and shown in my patent of April 4, 1871. a a a a are strong upright metal or wood posts firmly secured in the sections A' at or near each end, and projecting a distance above the deck A. a' a' are adjustable screw clamp-rods, and have eyes at each end that will go over and around the upper ends of posts a. o o are swivel screw-nuts on rods a'. A''' are curved projecting metal keels or hold-fasts, secured longitudinally upon the bottoms O O of the two parts A' A' of the dam. The outsides of these keels are inclined, while their inner sides are vertical or at right angles with the bottoms O O. C C are sliding upright piles, which may be wood pointed with

metal, or of metal entirely, and are made to be guided by and slide upon T-irons c c that are secured to the metal plates that form the insides of the two sections and the doors or gates at the ends of the same, and are of any desirable length. D D are plate-metal piles, and are made to slide in grooves between the piles C, or in a rabbet on the inside of said piles, or in grooves in the T-irons that the piles C slide upon; but where the distance is too great between the piles C then an additional metal guide-way will have to be furnished intermediate or between the piles C. The plate-metal piles D are made of such thickness of metal as will have the strength to be driven into hard earth, and to any depth necessary, without bending or breaking, and be so constructed that when necessary they can be raised out of the earth and above the bottom of the dam. f f are holes in and through the metal plates that form the sides of the hull or sections of the dam, and there are as many of them as there are compartments, or one to each compartment in the series. d d are sliding-gates, sliding in guide-ways on the inner side of the plates that form the hull of the dam, made to be water-tight, and are raised or lowered by the rods d' that have an eye upon their upper ends, and by which the gates are opened or closed as desired. a'' a'' are hatches or covers to openings through the deck A of the sections A', and have eye-bolts or knobs a''' for the purpose of removing them when necessary. These hatches should be made to fit air-tight in the openings in the decks, and have one to each compartment of the sections A', and so made and fitted in the decks that if necessary they will successfully resist a strong pressure outwardly, when desired. E represents a section of a wall that has been built within the coffer-dam after the coffer-dam has been moved forward for the purpose of continuing the building of said wall within it to any desired length by repeating the forward movement of the coffer-dam. e e are clamp piles, the lower end of which fit into eyes or staples e'' that are securely built in the lower part of wall E. e' e' are adjustable clamp-rods with eyes at each outer end of a size to go over and around the upper ends of the clamp-piles e, embracing the flanges b''' of rear gates B', and interposed flexible packing b, and securing a water-tight joint between the sides of the finished wall E and the flanges b''' of gates B'. The gates or doors B and B' are secured to the sections or

parts A' by means of hinges b', that have a pivot or hinge-rod, b'', which can be easily taken from them, and when so drawn out of the hinges the doors or gates B and B' can be detached and removed from the sections A' of the dam. All the joints between the doors and sections A' are packed with flexible packing b to secure a water-tight joint. Upon the decks of each section or part A' is a railway track, G, of such width of gauge and strength of rail as will, when necessary, sustain and have work upon them the necessary steam or other power for operating a pump or pumps, excavator or dredger, pile-driver, hoisting-machine, and other necessary machines for successfully doing all the work to be done within the dam.

The operation of placing and sinking the dam and commencing a wall therein is the same as that described in the patent cited, dated April 4, 1871. In the present invention the coffer-dam is constructed in two separate sections or parts, A' A', and secured together and adjusted by the swivel screw-rods a' around posts a, and the hinged doors or gates B when bolted together at their extreme outer ends, and gates B' when clamped onto the wall, as seen in Fig. 1. In preparing the dam for sinking in position the square piles C and sheet piles D are raised so that their lowest ends will not be below the bottom O of the sections A' when it is taken to the proper place for sinking; and when in the exact place the gates d are raised above the apertures f, when the water will flow into the several compartments, and as the dam settles will continue to flow into the compartments until the dam rests upon the bottom, underneath the water, the projecting keels or hold-fasts A''' taking hold of the earth or mud and settling into it until the bottoms O of the sections A' rest upon the earth; and by these projecting keels or hold-fasts the dam is held more secure in its place, and will resist the action of the tide or force of the waves which may tend to displace it, until the square and sheet-piles can be driven into the earth to the depth to find a solid bearing, when it will be impossible to move the dam in any direction; and it will be ready for operations within the space between the two sections A'. All the necessary power and machinery for successful operation being properly arranged and distributed upon the rail tracks on each section and on each side of the

opening between the sections, the water is then pumped out of such space, and then the other succeeding operations follow until the wall that is intended to be built within the space is fully completed. There is great advantage gained in having the construction such that the two sections or parts A' A' can be adjusted to or from each other, and when so adjusted held at the point at which they are so adjusted, which is done by means of the screw-rods a', swivel-nut o, and posts a. The same kind of clamp-rods and swivel-nut is used to clamp the flanges b''' upon the wall E, after the dam has been advanced forward to build a second length of wall. The sections A' and gates B and B' being built from metal plates, and having compartments and strengthened by transverse girders where necessary, as is usually done in the construction of the hulls of ships that are built of iron, makes a dam that is very heavy, and may not float when all the machinery, machines, and power to operate them are arranged thereon, and when such is the case the compartments in the sections A' are pumped full of air, even to compression, and enough to cause the dam to float.

Having thus described my improvement, what I claim, and desire to secure by Letters Patent, is—

1. In a coffer-dam, the projecting metal keel or hold-fasts A''' attached to the bottom O, for the purpose described.

2. The combination of the square timber or metal piles C and metal sheet-piles D with the sections A' of a coffer-dam, when constructed to operate as herein described.

3. The adjustable sections or parts A', having the square piles C and sliding-piles D thereto attached, in combination with the hinged and removable gates or doors B and B' provided with compartments and piles, in the manner and for the purpose described.

4. The coffer-dam herein described, consisting of the adjustable parts A' having compartments therein, piles C and D, keels or hold-fasts A''', end gates B and B' attached, and rail-tracks G thereon, constructed and arranged to operate in the manner described.

JOHN E. WALSH.

Witnesses:

WILLIAM A. HOYT,
ROBERT L. READE.

(82)