

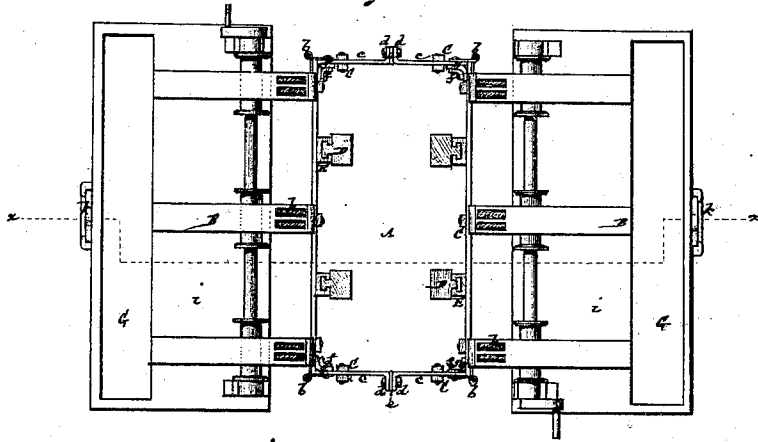
*J. E. Walsh,*

*Copper - Dam.*

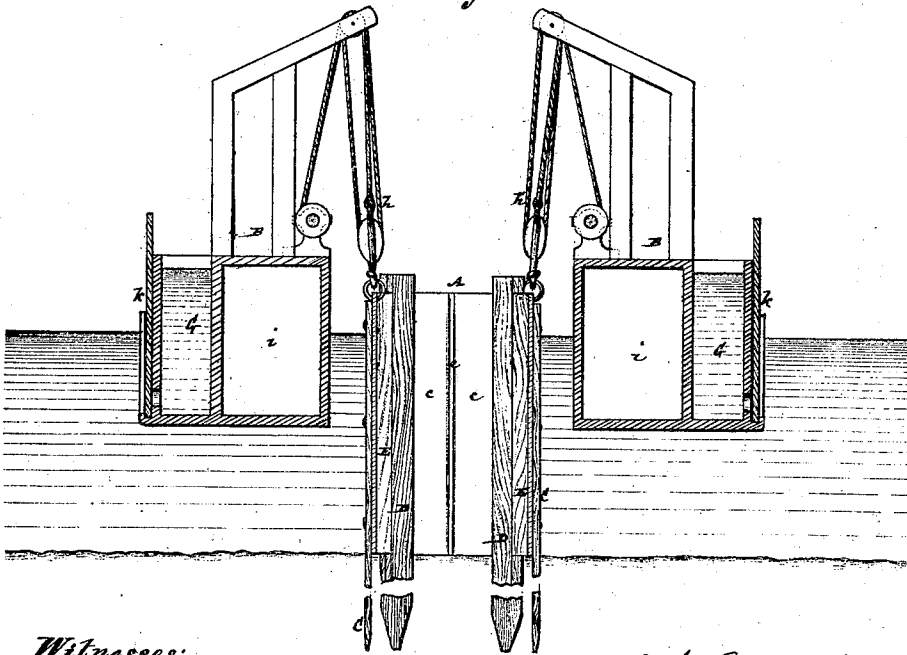
*No. 111,156.*

*Patented Jan. 24. 1871.*

*Fig. 1.*



*Fig. 2.*



*Witnesses:  
Fred. Hayner  
Fred. Busch*

*J. E. Walsh*

# United States Patent Office.

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

Letters Patent No. 111,156, dated January 24, 1871.

## IMPROVEMENT IN COFFER-DAMS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN E. WALSH, of the city, county, and State of New York, have invented certain new and useful Improvements in Coffier-Dams and apparatus for placing the same; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a plan, and

Figure 2, a vertical section, taken as indicated by the irregular line  $x x$ , in fig. 1, of my improved coffer-dam and apparatus for placing the same.

Similar letters of reference indicate corresponding parts.

My invention consists in the employment, within the dam, of loose piles, said piles and the dam being constructed so that the piles act as guides to the dam in raising and lowering it.

Referring to the accompanying drawing—

A represents the coffer-dam; and

B B, the apparatus or floating derricks used for placing the dam.

The dam A consists of an oblong or other suitably-shaped chamber or structure, the walls of which may be solid, and that is open at top and bottom, but one or more of the ends of which is made to open and close to facilitate the removal of the dam from the work it is employed on, or placing of it about an abutment or pier under water. Said ends are hinged to the sides of the dam, as at  $b b$ , forming half-doors,  $c c$ , which have their front edges bent to form flanges,  $d d$ , that receive in between them packing-strips,  $e$ , and are bolted together to make a close joint. These doors are made close at their hinges by angle-iron braces,  $f f$ , secured firmly to either door, and holding between them and the door India-rubber or other soft and flexible packing-strips,  $g g$ , arranged to bear against the interior surfaces of the sides of the dam when the doors are closed. By this construction the joint is free from

disturbance, or being broken at the hinges when opening and closing the dam.

C C are fixed piles secured to the sides and ends of the dam to effect the necessary hold or imbedding of it in the bed of the stream when lowering it to its place; and said dam is further held and steadied, also guided in raising and lowering it, by means of loose piles D D, arranged to fit as slides down grooved boxes E E attached to the inside of the dam. These piles D D are first driven into the bed of the river or stream, and then the dam lowered down them as guides, and, after the work is completed, slid up over them; said piles afterward either being allowed to remain to give stability to the foundation, or being removed as desired.

Such employment and construction of loose piles largely facilitates the placing of the dam.

The apparatus for placing the dam consists of derricks arranged in tiers or sets along either side of the dam on floating bases or scows, constituting floating derricks B B, which are provided with any suitable tackle and mechanism for raising and lowering the dam by attachment of the falls  $h h$  of the derricks thereto.

To ballast these floating derricks as against side tip by the dam in raising and lowering it, I construct either scow or floating base  $i i$  with a ballast-chamber, G, along its back or outer side.

The ballast for the purpose may be varied, but when water is used then it will be advisable to provide each chamber G with one or more valves,  $k$ , for letting in water as required, and that, when not needed, may afterward be pumped out.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination of the loose piles D D, constructed to act as guides, with the boxes E E and shell or walls of the dam, essentially as described.

Witnesses:

FRED. HAYNES,  
FERD. TUSCH.

JOHN E. WALSH.