W. H. Applegate.

Coffer Dam.

No. 64,933. Patented May 21, 1867.

Fig: 4.

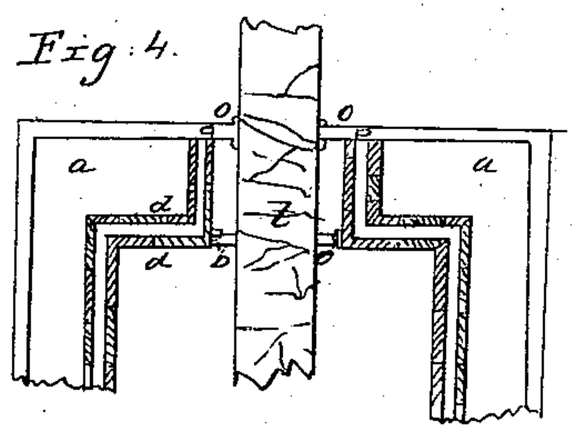


Fig: 2.

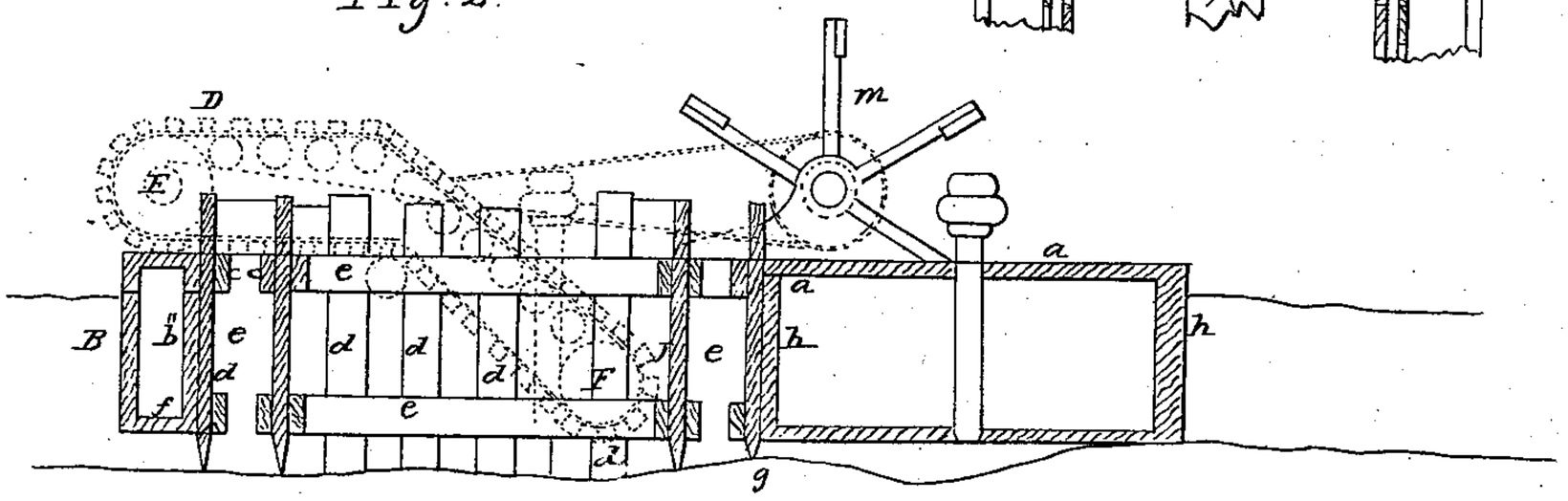


Fig: 1

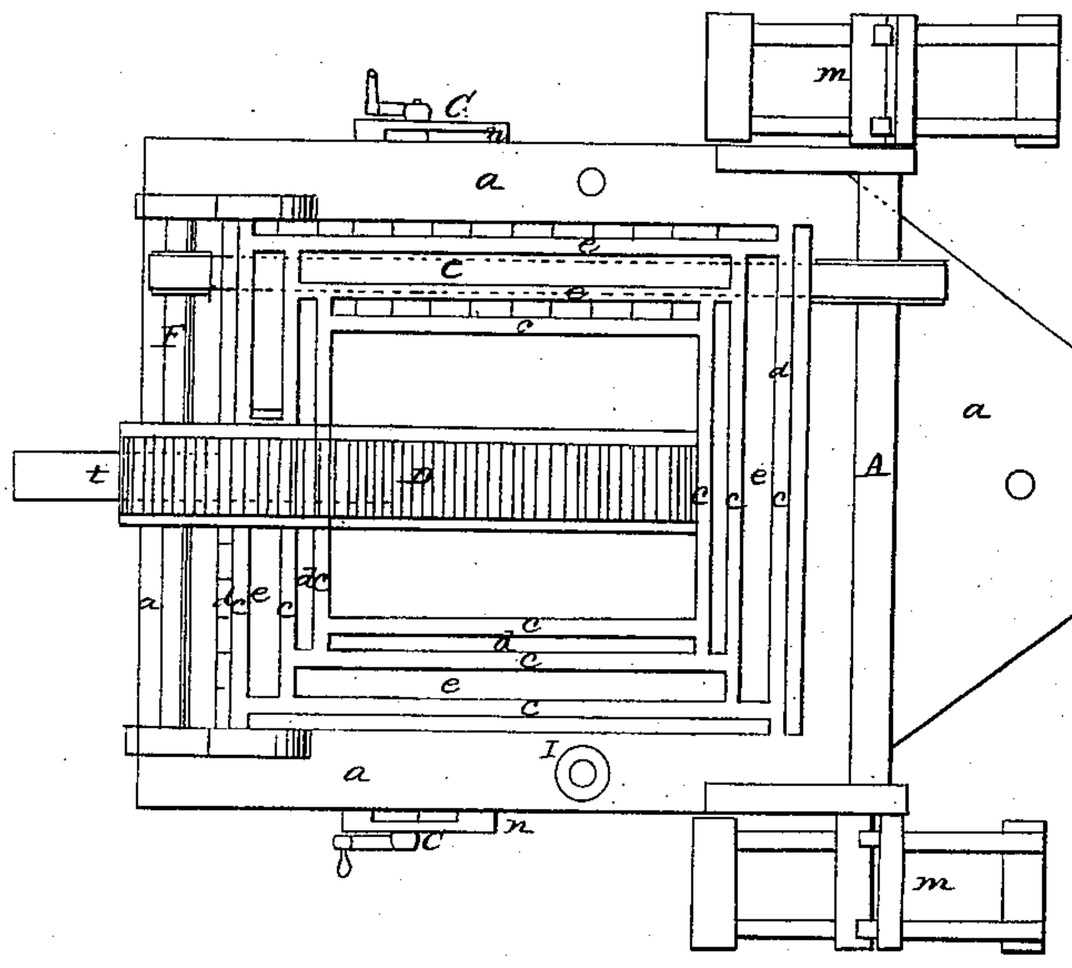
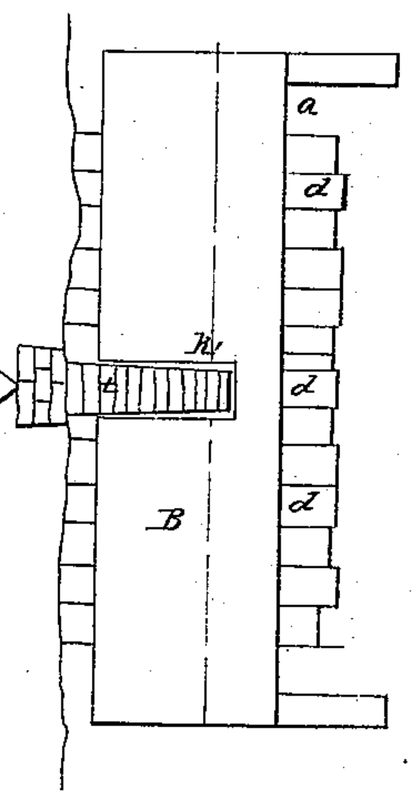


Fig: 3.



Witnesses:
C. A. Cone
J. W. W. Thompson

Inventor:
W. H. Applegate

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

United States Patent Office.

WILLIAM H. APPLEGATE, OF LE CLAIRE, IOWA.

Letters Patent No. 64,933, *dated May* 21, 1867.

IMPROVED COFFER-DAM AND BOAT.

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, WILLIAM H. APPLEGATE, of Le Claire, in the county of Scott, and State of Iowa, have invented a new and improved Portable Coffer-Dam; and I do hereby declare that the following is a clear, full, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon.

Figure 1 is a top plan view.

Figure 2 is a vertical section on the line *x x* of fig. 1.

Figure 3 is an elevation of the rear end; and

Figure 4 a plan view of the same, with top removed to show the plan of using the apparatus.

In building piers or walls in the bed of streams or other bodies of water, and in many similar operations, it becomes necessary, in the first place, to build a coffer-dam to exclude the water and furnish opportunity for the workmen to operate. This is usually done by driving piles, or, if rocky, in drilling holes and planting iron posts or bolts, to secure a timber framing in position, and then securing planking to this framing, and filling in with clay to shut out the water.

Instead of this I provide a boat of suitable size, having a large opening in the centre, and having the walls of the boat surrounding the same made hollow to form water-tight compartments. This boat may be made of any desired form and dimensions, but I prefer the form represented in fig. 1, in which *a* represents the deck or upper surface, the front end terminating in a sharp bow, as shown at *b*, fig. 1. Around the space in the centre of the boat, both at the top and bottom, I secure three rows of timbers *c*, as represented in fig. 1, these timbers being properly secured in position by braces and bolts, so as to be held firmly in place. It will be seen that three spaces are thus formed, running around on the sides of the large central opening, parallel with the sides or inner walls of the boat, the inner and outer spaces being of proper width to permit a series of planks *d* to be inserted endwise therein, edge to edge, while the central space is made wider in order to receive the clay for packing between the tiers of plank when thus inserted. An opening is made in the rear end of the boat, as shown in fig. 3, in which B represents the rear outer wall of the boat, it being understood that in all cases the height of the boat will be somewhat greater than the depth of the water where it is to be used, so that when sunk and resting on the bed its deck will be above the surface of the water.

The boat thus constructed is conveyed to the point where it is to be used, and sunk by admitting water into the water compartments in its walls, suitable valves being provided for this purpose. The plank *d* are then inserted in the spaces between the timbers *c*, as represented in fig. 1, the lower end of the plank being driven into the bed of the stream, as represented in fig. 2. The space *e*, between the two rows of planking, is then packed with clay to render it water-tight. The water is then pumped out of the dam thus formed, leaving a space free for the operations of the workmen. In order to facilitate the removal of rocks, sand, or other material from the bottom of the dam, I provide a carrier, consisting of an endless belt, D, passing over a pulley, E, at the bottom, and resting on suitable rollers, as represented in fig. 2. To the bow of the boat I secure a shaft, A, having paddle-wheels *m*, attached at each end, to be operated by the current of the stream. By connecting this with shaft F motion may be imparted to the shaft F, and thereby to the carrier D, which is so arranged as to deliver its contents over the end or side of the boat into the channel, or into a boat stationed there to receive the material. In case the bed should be rocky, so as to require drilling, the wheels *m* may be made to operate the drills by any suitable mechanism. When used in still water, where there is no current, steam or animal power must be employed for these purposes. In case it is desired to build a continuous wall of greater length than the opening in the boat it will be done by first building as long a wall as can be conveniently done within the space or dam, when the boat will be raised and moved forward; when it will be again sunk, with the opening in the rear end over the wall *t*, as shown in fig. 3. The space on each side of the wall is then packed tight, and the water pumped out of the dam, as before, when the wall is continued; and by repeating the operation, a wall may be thus built of any desired length, fig. 4 being a plan view of the wall extending into the dam, through the opening in the rear end of the boat. When the boat has been moved forward and settled down in position, planks or slides *o* will be placed on each side of the wall, so as to close the opening, the space between them being packed with clay to render it water-tight. A series of posts, C, are attached to the sides of the boat,

and arranged to move vertically in suitable guides *n*, and operated by a rack and pinion, or by any similar means, so that, in case the bed upon which the boat rests should be uneven, the boat can be adjusted or bevelled by means of these posts. It is obvious that screws may be substituted for these with similar effect. By these means I provide a portable or floating coffer-dam, that answers all the purposes desired, and operates in a most efficient manner.

Having thus described my invention, what I claim, is—

1. The construction and arrangement of a floating coffer-dam and boat combined, having the water-tight compartments and provided with the series of frames arranged to support the planking, substantially as herein shown and described.

2. In combination with a combined coffer-dam and boat, constructed as described, I claim the shafts A and F, and the carrier or endless belt D, for removing material from within the dam, substantially as set forth.

3. I claim the construction and arrangement of the boat with an opening at its rear end, substantially as described.

WM. H. APPLEGATE.

Witnesses:

O. H. CONE,

JNO. W. THOMPSON.