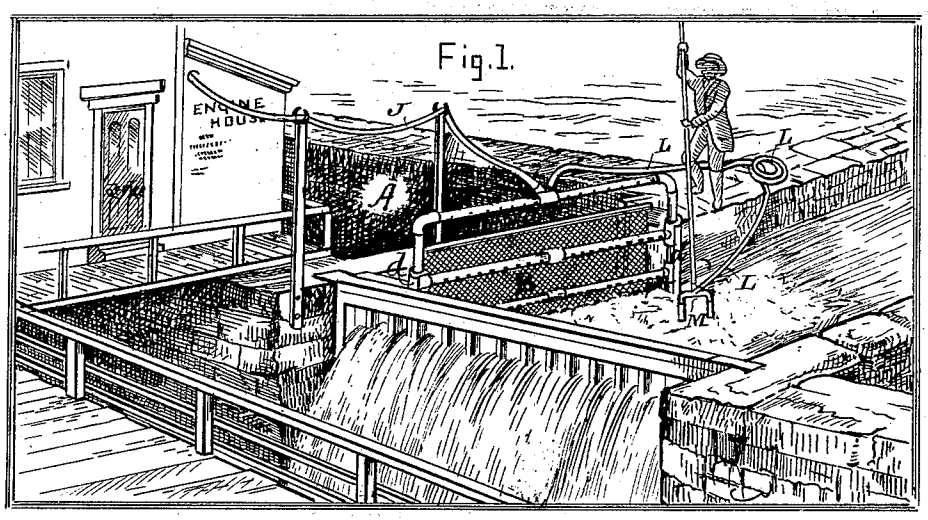
(No Model.)

A. H. MARTINE.

APPARATUS FOR MELTING ANCHOR ICE.

No. 279,901. Patented June 19, 1883.

Fig. 1.



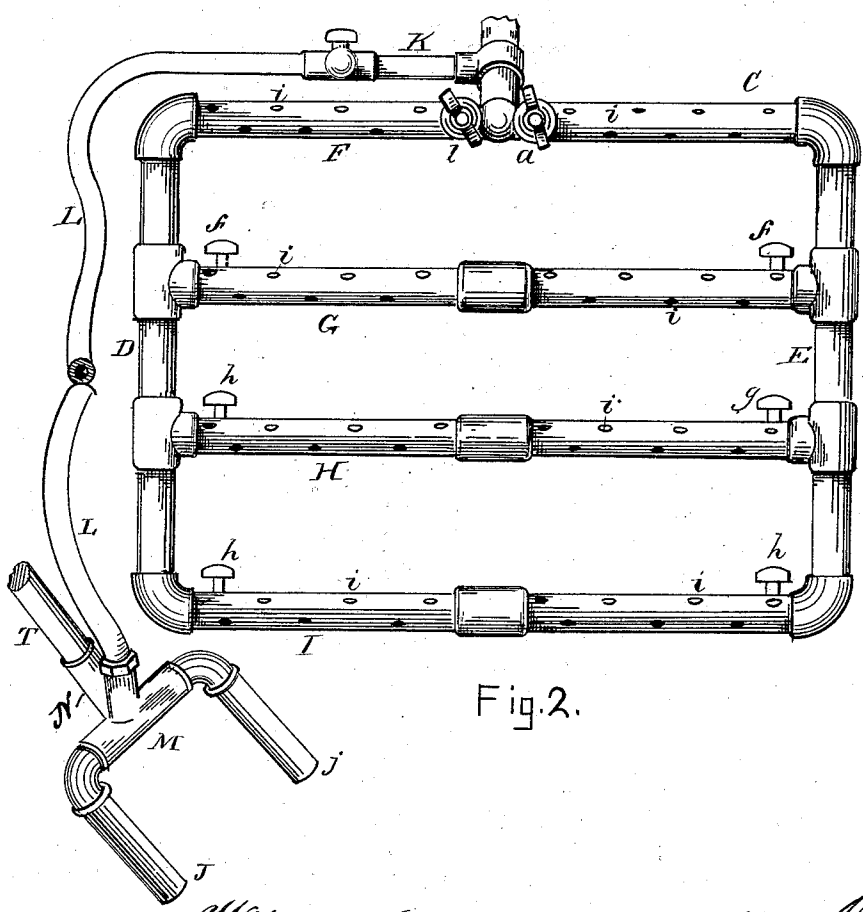


Fig. 2.

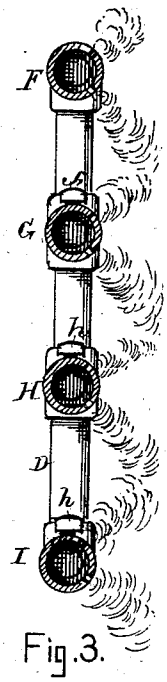


Fig. 3.

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UNITED STATES PATENT OFFICE.

ALFRED H. MARTINE, OF FALL RIVER, MASSACHUSETTS.

APPARATUS FOR MELTING ANCHOR-ICE.

SPECIFICATION forming part of Letters Patent No. 279,901, dated June 19, 1883.

Application filed February 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALFRED H. MARTINE, of Fall River, in the county of Bristol, State of Massachusetts, have invented a certain new and useful Improvement in Means for Removing Anchor-Ice, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view, representing the apparatus in use; Fig. 2, a side elevation, representing it detached or not in use; and Fig. 3, a sectional view.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates more especially to means for removing the anchor-ice which forms or accumulates at or near the screens of water courses or aqueducts and in the flumes or gateways of mills; and it consists, first, in a jet of steam applied under water directly to the ice by means of a pipe, hose, or any other proper appliance for the purpose; secondly, in a flume, canal, aqueduct, or water-course provided near its gateway or screen with a steam pipe or pipes arranged in such a manner as to enable steam to be brought into direct contact with the anchor-ice under water; and, thirdly, in an apparatus having a novel construction and arrangement of parts, as hereinafter more fully set forth and claimed, by which a more effective device for this purpose is produced than has heretofore been employed.

It is well known that a great deal of trouble exists in all cold climates, arising from the formation or accumulation of anchor-ice in flumes, canals, aqueducts, and other water-courses, more especially at or near the fine screens usually employed for straining the drinking-water supplied to towns and cities by means of aqueducts, the ice frequently choking up the screens to such an extent as to render it difficult to obtain a proper supply of water. My improvement is designed to obviate this difficulty, and to that end I make use of means which will be readily understood by all conversant with such matters from the following explanation, its extreme simplicity rendering an elaborate description unnecessary.

In the drawings, A represents the aqueduct or flume, and B the screen or strainer. Arranged near the screen, on its upstream side, there is a frame-work, C, as best seen in Fig. 2, the frame consisting of the side pieces, D E, and cross-pieces F G H I, composed of steam-pipes properly coupled together. This frame-work is preferably arranged to slide vertically in the ways *d d*, enabling it to be readily removed in the summer or whenever occasion requires, and is represented in Fig. 1 as partially elevated. A steam-pipe, J, connects the frame with a boiler for supplying steam, and branching from this there is a pipe, K, for use in combination with the hose L, which is provided with the double nozzle M. At the sides of the pipe J, where it connects with the piece F, there are two stop-cocks, *l a*, and there are also stop-cocks *f g h*, arranged respectively at the ends of the pieces G H I, as shown; but the stop-cocks may all be dispensed with, if desired. The pieces F G H I are perforated on their upstream sides for the emission of steam, this being preferable to having them perforated on all sides, as it tends to concentrate or direct the steam onto the ice to the best advantage and with the least waste.

In the use of my improvement the frame C is inserted in the ways *d d* and pushed down to the bottom of the aqueduct, after which it is properly connected with the induction-pipe J. Steam is then let into the apparatus, and, passing into the pieces F G H I, will be emitted through the perforations *i* and brought into direct contact with the ice, which will be rapidly melted, the unmelted ice being carried by the current down against the frame to take the place of that melted until the entire body is dissolved.

The object of the stop-cocks in the frame-work is to control the steam and direct it to any point desired, or to use it in every alternate cross-piece.

The nozzle M is provided with two discharge-orifices, *j*; but a greater or less number may be employed, if preferred. The nozzle is also provided with a socket, N, and handle T, (a section only being shown,) the handle being of sufficient length to enable the nozzle to be pushed down to the bottom of the aqueduct and manipulated to bring it into contact with all

parts of the screen in directing the steam onto the ice.

The hose may be used either with or without the frame-work when properly connected with a boiler or pipe for supplying steam, but is preferably used as auxiliary to the rest of the apparatus.

It will be obvious that the frame-work may be permanently applied or arranged to be readily detached, and may be provided with any number of cross-pieces, if preferred. I do not, however, wish to be understood as confining myself to the use of live steam, as exhaust-steam may be used, if desired, or to the employment of any special number or arrangement of pipes, or to perforating them on one side only, as these features may be varied greatly without departing from the spirit of my invention.

Having thus explained my invention, what I claim is—

1. An aqueduct or flume having a screen, a steam pipe or pipes, and means for vertically adjusting said pipe or pipes, the pipe or pipes and screen being arranged in proximity to each other and transversely to the current, substantially as described.

2. A device for melting anchor-ice, consisting of two or more horizontal perforated pipes having vertical connecting-pipes, all adapted to receive steam, said pipes being provided with stop-cocks or means whereby the steam may be directed into one or more of said pipes, substantially as described.

3. An aqueduct or flume provided with a screen, with vertical ways in front thereof, and with a frame of steam-pipes vertically adjustable in said ways, substantially as described.

4. In an apparatus for removing anchor-ice from water-ways, a steam-nozzle provided with a pipe connected with a flexible steam-supply pipe, and with a socket having an elongated handle, whereby the nozzle may be operated beneath the water, substantially as described.

5. In a device substantially such as described, the frame-work C, consisting of the perforated pieces F G H I and sides D E, in combination with the pipe J, substantially as set forth.

6. In a device substantially such as described, the frame-work C, provided with the stop-cocks *l a f g h*, substantially as and for the purpose described.

ALFRED H. MARTINE.

Witnesses:

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HENRY H. EARL.