No. 888,924. PATENTED MAY 26, 1908.

F. C. PIERCE.

APPARATUS FOR DEFLECTING FRAZIL AND ANCHOR ICE FROM POWER STREAMS.

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Fig. 1.

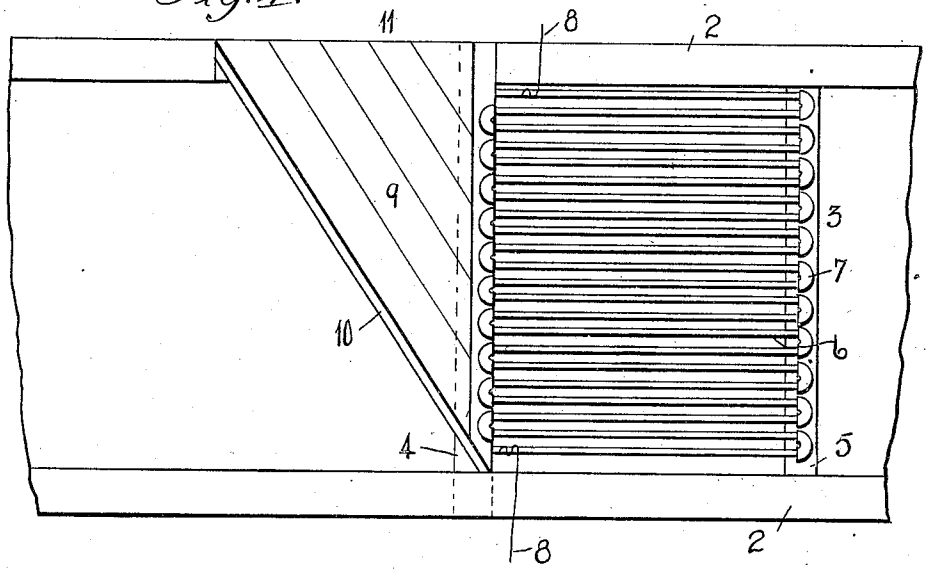
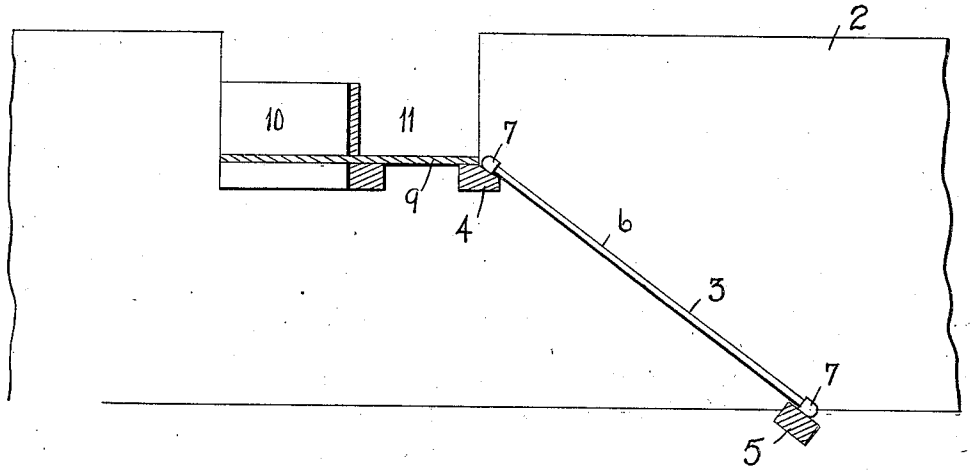


Fig. 2



Witnesses

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APPARATUS FOR DEFLECTING FRAZIL AND ANCHOR-ICE FROM POWER-STREAMS.

No. 888,924. Specification of Letters Patent. Patented May 26, 1908.

Application filed February 6, 1908. Serial No. 414,587.

To all whom it may concern:

Be it known that I, FRANK C. PIERCE, a citizen of the United States, residing at Shoshone, in the county of Lincoln and State of Idaho, have invented certain new and useful Improvements in Apparatus for Deflecting Frazil and Anchor-Ice from Power-Streams; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in apparatus for deflecting frazil and anchor ice from power streams and has for its object to provide simple means adapted to be arranged in a power stream for deflecting frazil and anchor ice therefrom so as to prevent the same from adhering or sticking to water wheels or other hydraulic apparatus exposed to the stream and retarding or interfering with its proper action.

With the foregoing and other objects in view which will appear as the nature of the invention is better understood, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a top plan view of my invention secured in position in a race-way; and Fig. 2 is a central vertical longitudinal sectional view of Fig. 1.

Referring now more particularly to the drawings, the numeral 1 represents a race-way having side walls 2 for conducting a stream of water to one or more water wheels or other hydraulic apparatus.

3 represents a suitable deflector grate arranged at a suitable angle in the stream and secured in position to the race-way by supporting cross-beams 4 and 5 arranged respectively at the bottom and at a suitable distance from the upper edges of the walls of the race-way. Said deflector grate comprises a plurality of parallel rods, bars, or tubes 6 connected at adjacent ends by suitable return couplings 7. It is found that anchor ice and frazil will stick to any surface with which they may come into contact under ordinary conditions, but I have found that such ice will not stick or adhere to metal surfaces if a sufficient quantity of heat is imparted thereto to maintain them at a slight degree above the temperature of the surrounding water and to prevent anchor ice and frazil from sticking or adhering to the bars or tubes of said deflector grates, I provide the free ends of the outer bars with suitable terminals 8 so that an electric current may be caused to flow through the entire length of each bar. The numeral 9 represents a horizontal floor or grating of preferably triangular form which is secured at one of its edges to the top of said supporting cross-beam 5 and extends entirely from one end of said cross-beam to the outer side of the base of the opposite side wall of the race-way, said floor being provided at its long edge or hypotenuse with a vertical wall or grating 10. The side wall of the race-way adjacent the short side of said floor is cut away above said floor to provide an overflow 11 (See Fig. 2).

In the application of my invention, it is arranged in a race-way in the manner above described. Said deflector grate while not retarding the flow of the stream in the race-way collects the anchor ice, frazil and cake therefrom and raises it on the horizontal floor 9 from where it is deflected by the wall 10 and carried through the overflow 11. To prevent the ice from sticking or adhering to the grate, an electrical current is caused to flow therethrough to maintain it at a slight temperature above the surrounding water.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Having thus described my invention, what I claim as new is:—

1. In an apparatus for deflecting frazil anchor and other kinds of ice from power streams, the combination of a deflector grate arranged at an angle in a stream, means for introducing electrical energy into the bars of the grate to raise their temperature and a horizontal floor having a vertical wall at one edge adapted to be arranged in the stream on a level with the upper end of said grate.

2. In combination with a race-way, a deflector grate arranged at an angle therein, means for introducing electrical energy into the bars of the grate and a triangular floor having a vertical wall at one edge arranged horizontally in said race-way on a level with the upper end of the grate.

3. In an apparatus for deflecting frazil and

anchor ice from power streams, a deflector grate comprising a plurality of parallel bars joined at adjacent ends by return couplings and means for introducing electrical energy into the bars of said grate, substantially as described.

4. In combination with a race-way, a deflector grate comprising a plurality of parallel bars joined at adjacent ends arranged at an angle therein, means for introducing electrical energy into the bars of said deflector grate and a horizontal floor or grate having a vertical wall at one edge arranged in said race-way adjacent the upper end of said grate.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

F. C. PIERCE

Witnesses:
JAMES OTTERSON,
JOHN R. TRESNON