No. 799,569. PATENTED SEPT. 12, 1905.

J. E. JENKINS.

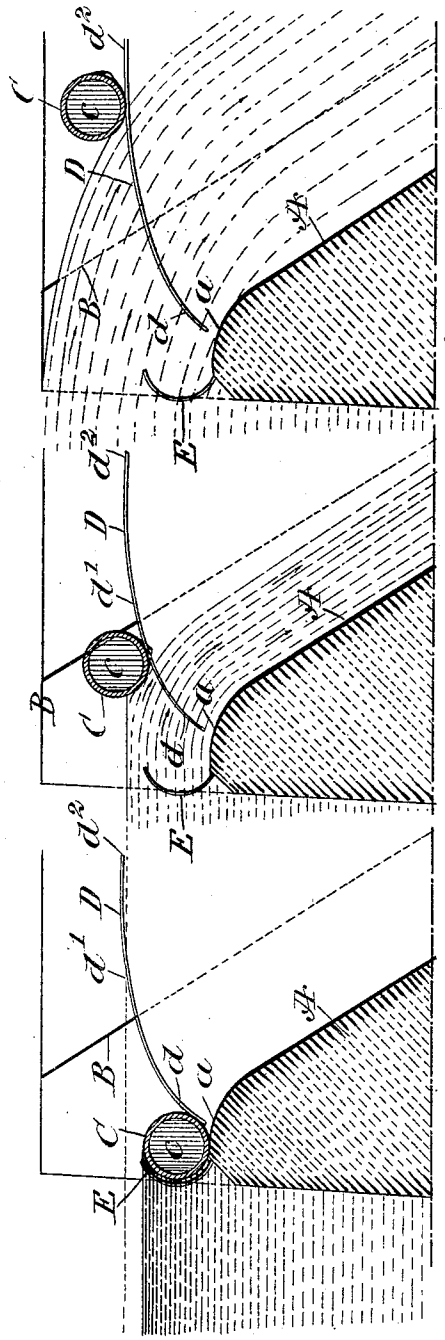
FLASH BOARD FOR DAMS.

APPLICATION FILED FEB. 4, 1905.

Fig. 3.

Fig. 2.

Fig. 1.



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FLASH-BOARD FOR DAMS.

No. 799,569. Specification of Letters Patent. Patented Sept. 12, 1905.

Application filed February 4, 1905. Serial No. 244,162.

To all whom it may concern:

Be it known that I, JAMES EDGAR JENKINS, a citizen of the United States, and a resident of Vernon, in the county of Oneida and State of New York, have invented a new and Improved Flash-Board for Dams, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide an automatic roller flash-board which will have a damming effect on the flow of the water in all cases in which the surface of the water is below a certain maximum elevation, the flash-board being of cylindrical construction and mounted to freely roll upon curved tracks engaging the board at its ends, and, if necessary, at points between its ends, which tracks have a maximum curvature at their upstream ends gradually increased in radius to a point near their outer or downstream ends, which latter parts are substantially straight and nearly horizontal.

A further purpose of the invention is, first, to produce a flash-board which will automatically open when the water-surface rises above a certain elevation, usually the elevation of the top of the flash-board; second, to produce a flash-board which at times when the water is above said elevation will present an opening as an outlet for the impounded water, which opening and consequent outflow of water will be in some degree proportional to the amount by which the water-surface is above the said elevation; third, to produce a flash-board which will admit of the free passage of all flood-waters, ice, logs, &c., at all times when the water-surface has reached or excelled in elevation some fixed limit, said limiting elevation being higher than the one first referred to; fourth, to produce a flash-board which will automatically close and stop the flow of water when the water-surface falls to the first-mentioned elevation; fifth, to provide a flash-board which shall be more simple in construction and design than any of those of which I have knowledge, and, finally, to construct a flash-board which will perform its duties as effectually in freezing weather as in mild weather.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through a portion of a dam and the improved flash-board, showing the latter in its initial position at the crest of the embankment or masonry of the dam. Fig. 2 is a view similar to Fig. 1, the flash-board, however, being in the intermediary open position or at a point between the ends of its guide-tracks; and Fig. 3 is a view similar to Figs. 1 and 2, the flash-board, however, being practically at its full open, outer, or highest position.

Referring more particularly to the positions of the automatic rolling flash-board as illustrated in the drawings, in Fig. 1 the flash-board is shown as having a full damming effect upon the crest of the spillway during low water. In Fig. 2 the position of the flash-board is illustrated with respect to the spillway of the dam during normal flood, the elevation of the water-surface being the maximum at which the flash-board has a damming effect, and in Fig. 3 the position of the flash-board is shown during extreme flood, the area of the water between the cylindrical flash-board and the dam being greater than the area of the water on the crest of the dam, and in this position the flash-board has no damming effect.

A represents the spillway of the dam, having a crest *a* of any desired formation.

B represents the side walls at the spillway constructed in any approved manner.

C represents a flash-board which is in the form of a cylinder and normally rests upon the crest *a*, which cylinder may be made of any approved material, is preferably made hollow, and is provided with heads *c* at its ends.

D represent the tracks upon which the flash-board rolls at the rising or falling of the level of the water passing over the spillway. These tracks D are supported in position by direct engagement with the side walls B or in any approved manner and are usually flat at their upper faces, on which faces the flash-board rolls, and the said tracks extend from a point near to and over the crest *a* of the spillway A any desired distance in direction of downstream.

With reference to the flash-board, it is unattached and is placed with its axis parallel with the crest of the spillway on which it acts. Before the flash-board is brought to open position it lies upon the crest of the spillway, as

is shown in Fig. 1. To open the flash-board, it is raised off the crest a of the spillway and is supported by the tracks D, which are more or less curved, and whose slope is greatest at the inner or upstream ends d, gradually diminishing at their central portions d', while their outer or downstream ends d^2 are nearly horizontal.

The flash-board C is rested upon the tracks D by the pressure of the water against its upstream face, and the curve of the tracks is so designed that for every elevation of the water-surface above a certain minimum elevation the flash-board will roll to a point at which the moments of the horizontal and upward pressures of the water about the point of contact of the flash-board with the curved tracks shall be balanced by the moment of the weight of the flash-board about the same point.

In order to make a water-tight bearing for the flash-board where it lies adjacent to the sides of the dam, a stationary curved guard E is provided for the ends of the flash-board, which guards have their concaved surfaces facing downstream, and said guards are usually secured to the crest of the dam or the inner surfaces of the side walls.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In the construction of dams, tracks curved in a horizontal plane, extending from the crest of the spillway in direction of downstream, and a cylindrical, rolling flash-board adapted to normally rest upon the crest of the spillway, and which is rolled onto or off from the tracks by the action of the water flowing over the crest of the spillway.

2. In the construction of dams, tracks curved in a horizontal plane, extending from the crest of the spillway in direction of downstream, the upstream ends of which tracks slope downward toward said crest, their downstream ends being substantially horizontal, and a cylindrical, rolling flash-board, adapted to normally rest upon the crest of the spillway, and which is rolled from point to point upon the tracks by the action of the water flowing over the crest of the spillway.

3. In the construction of dams, a cylindrical, rolling flash-board, acted upon solely by the water passing over the dam, and track-supports for the flash-board, independent of the spillway of the dam.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES EDGAR JENKINS.

Witnesses:

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GEO. A. SALLANS.