The sills of the morth and south sections are on the same level, while those of the middle section in the deepest part of the river bed see 2' 2" lower. The cross sections of the three portions are similar. Plate...... shows that of the middle section.

The ground sills, 10 in number, in lengths of 32 feet, are placed at right angles to the stream, at distances varying from 5' 5" to 6' apart, the distances varying in order to secure a row of longitudinals under each vertical angle of the surface of the tumbling way. Above the sills and at right angles to them are placed a row of cross tics parallel , with the stream, each 53 feet long, and from 5' 8" to 6' apart. These project 11' 10" to the rear of the main body of the dam, resting on two of the sills of the ground course. The spaces between these projections are filled in with round timbers laid close. A solid close laid platform to the rear of the main body of the tumbling way is thus formed, which serves to dissipate the force of the water flowing over the tumbling way before it reaches the bed of the river. The next or third course consists of 8 longitudinals, above which on the fourth course are the horizontal openings previously mentioned. These aro 28 in number, 5 feet wide, 12" deep, and extend entirely through the structure from its upstream face to the open river in the rear.

They are formed by flooring the spaces between the cross ties of the 4th course with double 1 inch planking, and close laying the longitudinals of the 5th course to serve as a covering. Above the 5th course the longitudinals and cross ties are so arranged that the front face slopes upwards to the ridgent the rate of $2^{-3}\frac{1}{2}$ to 1^{-1} . The longitudinal which constitutes the ridge is placed at a horizontal distance of $17' 2\frac{1}{2}''$ from the front face, and is at an elevation of 415 feet (surface planking not include) above high water mark of Durrard Inlet. The rear'slope extends downwards from the ridge at the same rate as the front slope, and terminates in a fevel bench 12 feet wide.

In the tumbling way there are 196 eribs, formed by the intersections of cross ties and longitudinals. Especial care was exercised in filling these cribs. As each course was completed, the largest boulders attainable were placed in the cribs by hoists. The spaces between were filled up with smaller stones and coarse gravel, the latter being rammed into every creyice. In excavating the foundations, certain huge boulders, which were found to be firmly anchored in the river bed, were blasted into a columnar shape, so that the bed sills and cross ties when laid would enclose them. These not only served as stone filling, but al-o securely locked the whole attructure to the bed of the river in a much more substantial manner than any artificial means.

The whole surface of the tunbling way is covered with 3 incluplanking, jointed and laid close. The upper half of the front slope, being exposed to floating logs, is laid double. The vertical part of the front face is protected by 1" and 2" sheet piling, embedded in a concrete trench 3 feet deep, and extending over the whole length of the structure.

Inasmuch as it was necessary to keep the horizontal openings open until the whole dam was completed, the placing of this sheet piling was done in two operations.

The lower portion of the piling below the level of the floor of the openings was placed in position in the usual manner, the tops being drossed to a uniform level. A longitudinal 12" by 3" plack, extending over the whole length of the tumbling way, was spiked to the tops of this sheet piling, projecting 1 inch above, and forming a groove into which the upper sheet piling would fit when placed in position. When the proper time arrived to close the openings, a sufficient number of men were ranged along the toe of the front alope, provided with the proper lengths of sheet piling, spikes and hammers. On a given signal each plank was pushed home into the groove below the openings, and the necessary spikes driven into the top ends. It required only five mainutes to complete the whole operation, and by that time, the water in front had not risen above the toe of the front alope.

Immediately in front of the tumbling way is an apron of brush, gravel and boulders. This apron extends from the settling pond in front of the north abutment elear across the face of the tumbling way to the gate of the slubeeway. In cross section, it begins at a point halfway up the front slope, and extends horizontally a distance of 9 feet. It then slopes down to the bed of the river at the rate of 3 to 1.