

Innesville Feb. 25-1885

W. W. Cargill & Bros.

La Crosse Wis.

Gentlemen

I have to report in regard to the Water Power at Whalan, Minn. as follows: The most favorable line for the canal leaves the pond about 20 rods above the dam, and passes to the left of the house on the outskirts of the village & intersects the river at the bend below the highway bridge. I directed stakes to be put in on this line, the distance is 33 chs. or 132 rods. The head or fall from the surface of the water in the pond to the surface of the water in the river, at the bend, as on Feb. 12 to 14, was $11 \frac{43}{100}$ ft. I think this head can be increased from 1 ft. to $1 \frac{1}{2}$ ft. with reasonable expense, by blasting out & lowering the rocky bed of the river at the rapids below the bend, this could readily be accomplished at a low stage of water, by partially turning the stream, so as to uncover a portion of the bed thus lowered, while the other portion of the bed was being blasted & removed. The effect of lowering the bed of the river at the rapids, would be to lower the surface of the water in the river above the rapids, when the tail water mill discharge into the river, & thus increase the head. I was informed, though I did not take any levels up the river, to verify the statements made by me, that the surface of the water in the pond above the dam could be raised $1 \frac{1}{2}$ ft., above what it was on Feb. 14, by putting flash boards on the dam, without damage to the land above. If such be the case, the head by these two means could be increased to about 14 ft. when the mill was shut down, which ought to give a working head, when the mill was in operation of at least 13 ft. allowing 1 ft. loss of head when the mill was in operation for fall or draw down in the head race & rise in the river at the tail water discharge.

On Feb. 17, I made a measurement of the water flowing in the river. The place selected for the measurement was below the highway bridge, between that & when the tail water mill discharge into the river, my measurements show that there was flowing in