

to fit to foundation plate and turbine cylinder so as to form as tight a joint as it is practicable, bearing in view that the gate has to slide up and down.

4th. TURBINE CYLINDER.—The turbine cylinder is to be made in cast iron, of the shape shewn on plan. Its total height is to be 6 feet 9 inches, and its diameter when finished where the turbine revolves is to be 8 feet $\frac{3}{4}$ inch full, both bottom and top flanges are to be round. Inside of said cylinder there are to be 4 lugs, so arranged as to be able to receive a cross bridge. Six perpendicular strips are to be cast on the outside of cylinder, and they are to be fitted so as to serve as guide to the gate when going up or down. Said cylinder is further to be provided with a man-hole and plate, as shewn on plan. The work on said cylinder is that it should be bored true to receive a movable and stationary wheel; that it should be fitted and bolted securely to the gate stands; and that it be made so as to fit to the gate in the manner described under the head of turbine gate; that it should receive the cross bridge so fitted as to present a level surface for the step.

In conclusion, there are to be cast on the outside and fitted two brackets, 20 inches wide, which are to be made as shewn on the plan, and fitted and secured with 2 bolts, $1\frac{1}{2}$ inch diameter, to iron girders, to be described hereafter.

5th. STATIONARY OR GUIDE WHEEL.—Said wheel is to be composed of an inside rim in cast iron, 18 inches high and 5 feet 6 inches outside diameter, thickness of said rim $1\frac{1}{4}$ inch. Said rim is to be strengthened by means of a plate of form and thickness shewn on the plan, and to have further 8 arms of 1 inch thickness. On said rim there should be firmly secured 18 wrought iron buckets, of $\frac{1}{4}$ inch thickness of metal, of the form shewn on the plan, as the curve required, at the outside diameter of the cast iron rim; the surface of the buckets is to be formed by lines running horizontally from the axis to the cone of the turbine cylinder, wherein said buckets are to be carefully fitted. Said buckets after being made to the curve required are to be ground smooth. The bottom and top of rim and buckets are to be fitted true.

6th. MOVABLE WHEEL.—Said wheel is to be composed of an inside rim of cast iron, of 5 feet 6 inches outside diameter, $11\frac{1}{2}$ inches high, and double disk, as shewn on the plan. The centre is to form a hub, which is to be bored and fitted with key seat and keyed to the turbine shaft.

The sections of metal of said rim are stated on the plan. On said rim there are to be firmly secured 45 wrought iron buckets of $\frac{1}{4}$ inch thickness, made carefully to the curve shewn on the plan, which