

14th. GATE MOTIONS.—The Gate motion is to be composed of two wrought-iron rods $\frac{1}{2}$ inch diameter each, 16 feet 6 inches long, fitted with keys into the two bosses at the gate. At the other extremity of each of said rods there is to be attached an eye-bolt, $1\frac{1}{2}$ inch thick, which is to connect with 800 lbs. of counter-weight for each rod; this is to be done by means of $\frac{3}{4}$ inch chain, with sheaves and stands; 6 inches from the end of said rods there is to be attached a rack of 36 inches length. Pitch, $\frac{1}{2}$ inch—width of teeth, 4 inches. Two pinions are to gear in said racks, of 7 inches diameter at pitch line, which pinions are to be of 5 inches total width, and to be keyed or pinned to a $2\frac{1}{2}$ inch horizontal wrought iron shaft, 12 feet long—which shaft is to be held with proper stands against the back of the racks and to be bolted on the top of cover of chamber.

Said shaft is to be provided with a worm-wheel of about 20 inches diameter, which wheel is to gear in a worm about 5 inches diameter, secured to a short horizontal shaft held by a substantial stand; at the other extremity of said horizontal shaft there is to be a 36 inch diameter hand-wheel, 2 inches round in the rim, to be turned and polished.

SPECIFICATION OF GEARING.

1st. PEDESTAL FOR TURBINE SHAFT.—This pedestal is to be $8\frac{1}{2}$ inch bore scant to suit the turbine shaft, its bearing is to be 15 inches long. The bearing part is to be in Babitt metal. Its base is to be 2 feet 6 inches long, by 12 inches wide and 2 inches thick when finished. The cap is to be made as shewn on the plan, but provided with a side tallow cup, which is not shewn on the plan. The pedestal is to be bored, faced, and $\frac{1}{2}$ inch diameter, and to be secured to the bridge on top of the turbine chamber by means of four bolts, $1\frac{1}{2}$ inch diameter, and wrought iron wedges. The cap is to be secured by 4 bolts, $1\frac{1}{2}$ inch diameter, with double nuts.

2nd. BRIDGE ON TOP OF TURBINE.—This bridge is to support the pedestal of turbine shaft and the pedestal for the horizontal or counter-shaft. It is to be in cast iron, and to have 2 feet, each 18 by 20 inches square. Which feet are to be 4 feet 6 inches apart in the inside. The peculiarity of these feet is that they have each to have a projection of $1\frac{1}{2}$ inch depth or thickness, and 20 inches long, which by means of wrought iron wedges are to be secured in the corresponding depressions in the cover of the chamber. The width of these projections on the bridge is to be $3\frac{1}{2}$ inches, and the depression in cover 6 inches. In addition to this mode of securing the bridge to the cover there are to be 6 bolts in each foot, of $1\frac{1}{2}$ inch diameter, finally a "dowel pin."