

6th. BEVEL WHEELS.—These wheels are to be of the kind called mortice wheels, and are to be $4\frac{1}{2}$ inches pitch, and 18 inches length or face of teeth, which teeth are to be shaped to the form shewn on a working drawing made for the special construction of these wheels. The wheels are to be made as follows: 1st. Bevel Pinions.—This wheel is to have 38 iron teeth, and is to be $51\frac{1}{2}$ inches in diameter at pitch line. The teeth are to be carefully dressed on the working side to a template to be furnished, it is to be bored out true, and by means of a wrought iron key and two steel pointed set screws is to be firmly secured to the turbine shaft. The wheel is to be shaped in the rim as drawn, and to have 5 arms, of $1\frac{1}{2}$ inch thickness, and of the shape shewn on the working drawing. 2nd. Mortice Bevel Wheel.—This wheel is to have 60 wrought iron teeth, and is to be 80 inches diameter at pitch line, and the rim is to be $23\frac{1}{2}$ inches breadth. Its depth at the outside diameter is to be $4\frac{1}{2}$ inches, radiating to the centre line. The said rim is to contain a bridge in the middle of the length of each tooth, $1\frac{1}{2}$ inch wide, and the depth of $3\frac{1}{2}$ inches. The wheel is to be bored and turned on the rim and face of rim. The teeth are to be made out of sound, well-seasoned hickory, thoroughly soaked in tallow, and to be dressed down to a template, to be furnished, after being firmly driven home into the mortices and there secured by means of wedges. The hub of said mortice bevel wheel is to be bored to 14 inches, and is to be fitted and firmly secured to the countershaft by means of two wrought iron keys, each 2 inches wide, placed at right angle to each other.

7th. SPUR WHEELS.—These wheels are also to be of the kind called mortice wheels. They are to be 5 inches pitch and 24 inches face of teeth. They are to be made as follows:—1st. The spur pinion is to have 29 iron teeth, its diameter at pitch line is to be 46 $\frac{1}{5}$ th inches, the teeth are to be carefully dressed on the working side according to a template, to be furnished. The pinion is to be bored out true to 14 inches, and by means of two wrought iron keys, 2 inches wide, is to be firmly secured to the countershaft. The large wheel, or mortice spur wheel, is to have 77 teeth, and its diameter at pitch line 122 $\frac{23}{100}$ th inches. The rim of the wheel is to be 30 inches total width. In the middle there is to be a bridge 7 by $2\frac{1}{2}$ inches. The number of arms, and sections of same, of both these wheels are fully represented on a working drawing of said wheels. Thereon also is given the depth of rim and bridge and thickness of hub.

Regarding the teeth of wood in this wheel, they are to be made of solid well-seasoned hickory, soaked in tallow, and after being firmly driven home into the mortices, they are to be secured by means of wedges. In both these mortice wheels, the bevel and spur,