

REGULATOR, &c.—Balanced double poppet valves and upright dome pipe of cast iron with brass joint rings, and $5\frac{1}{8}$ " inside and $5\frac{1}{2}$ " outside diameter, wrought iron dry pipe and cast steam pipes $4\frac{1}{4}$ " diameter in smoke box; to have a small brass relief valve in very strong cage with spring, &c., complete, on top of upright dome pipe. Long wrought iron pipe to be well stayed to top of barrel. Handle and gear to drawing No. 1213

CYLINDERS, &c.—(Right and left reversible) one cylinder, steam chest and half saddle in one casting, of hardest close-grained metal, as hard as can be bored and planed, free from blow holes, strongly bolted together, to frame, and to smoke box, and also further secured by shoulders forged on frame, against which it is held tight by steel wedges as shown by drawing No. 1206. Cylinder 17" diameter x 2' : $7\frac{1}{4}$ " x 1" thick, covers of cast iron each secured, by twelve $\frac{3}{4}$ " studs, as per drawing No. 1073. Slide valves of cast iron to have 5" travel and 1" lap. Steam parts are 15" x $1\frac{1}{8}$ " and exhaust parts 15" x $2\frac{1}{2}$ ". Steam is admitted to both ends of steam chest; chest is to have only one cover on top secured by 26 studs $\frac{3}{4}$ " diameter, a blind brass gland in front and a double gland in rear. Exhaust pipes of cast iron with removable tips $\frac{5}{8}$ " diameter, lifting pipe to be of wrought iron made so that its height can be varied at pleasure. Piston head of cast iron with rings of brass set out by 5 bow springs and set screws, &c. Piston rod 3" diameter of steel, screwed in piston head, and then secured by $\frac{3}{4}$ " screwed key. Solid brass glands and bushes of very hard metal to be used in cylinder and steam chest. All the steam tight joints about the engine are to be scraped or ground in, as nothing more than a little linseed oil will be allowed for making the joint. Crosshead of hard cast iron, with steel cotter, to drawing No. 1207. Connecting and side rods of best hammered scrap iron to drawing 1081, finished bright, the bearings to be of hard brass. All bolts and keys to have the necessary flat cotters.