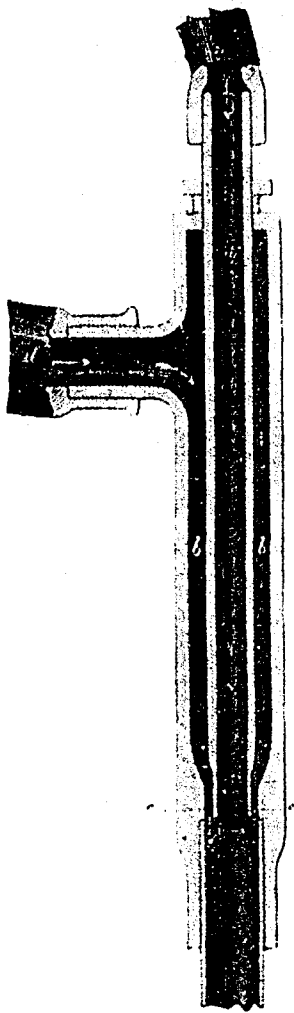
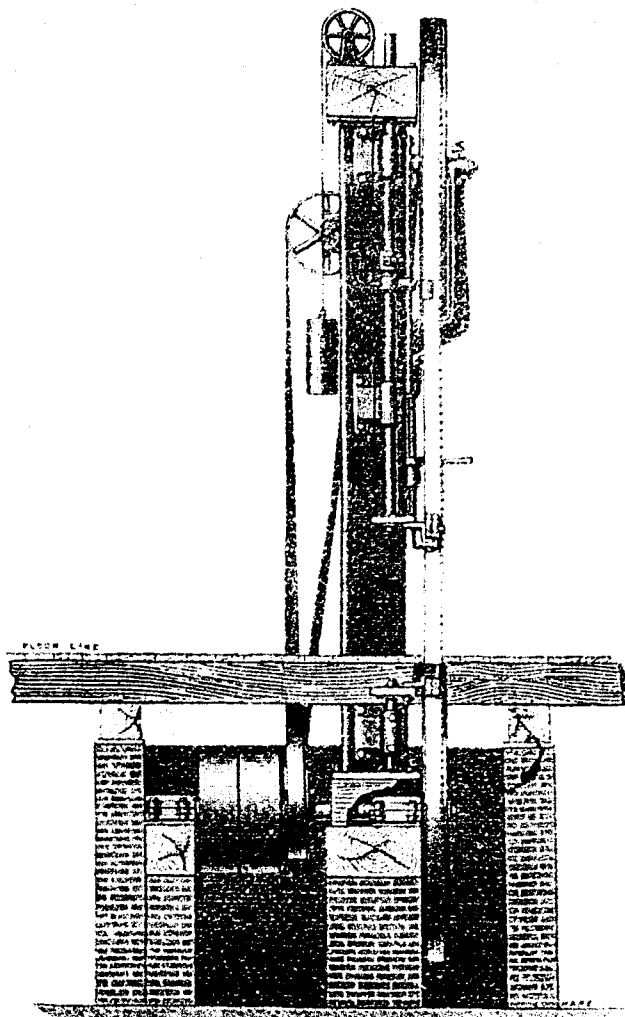


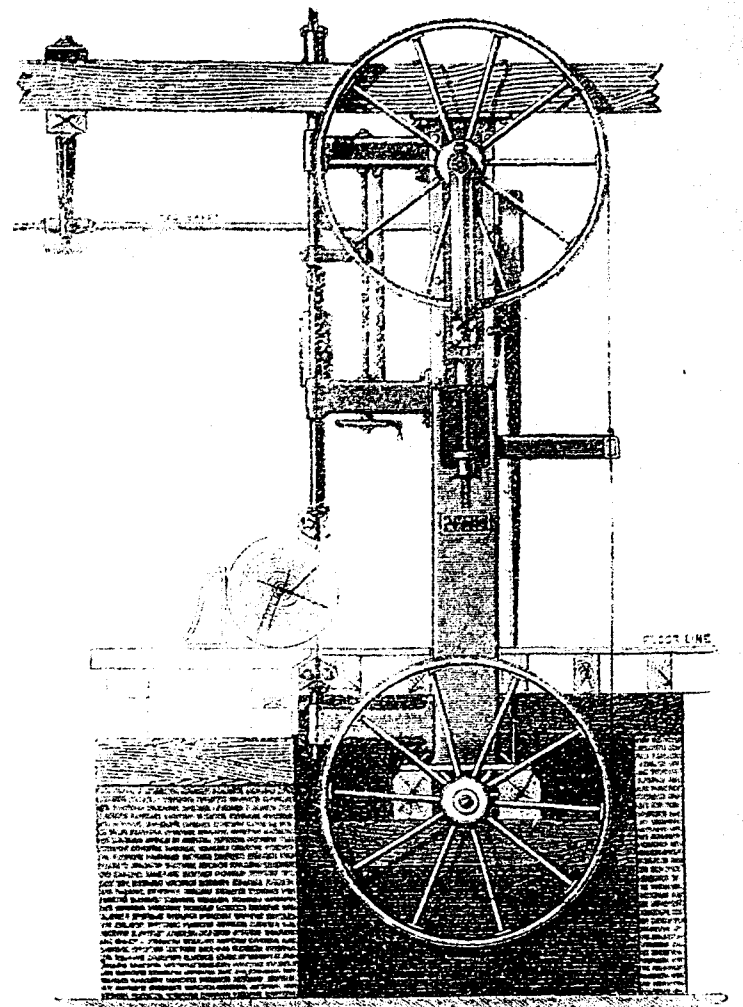
MECHANICS AND ENGINEERING.



THE SAND BLAST



BAND SAW MILL



BAND SAWING MACHINE.

We give on this page front and side elevations, drawn to a scale of  $\frac{1}{4}$  in. equal to 1 ft., of a band saw mill for cutting timbers, constructed by Messrs. Richards, London, and Kelley, of the Atlantic Works, Philadelphia.

The mill is intended to receive blocks up to 48 ft. long, and 5 in. wide, and is adapted to the heaviest timber of North America. The wheels are of wrought iron, 72 in. in diameter, mounted centrally on the main column, so as to equalise the strain of the saw, and prevent its springing, and to econo-

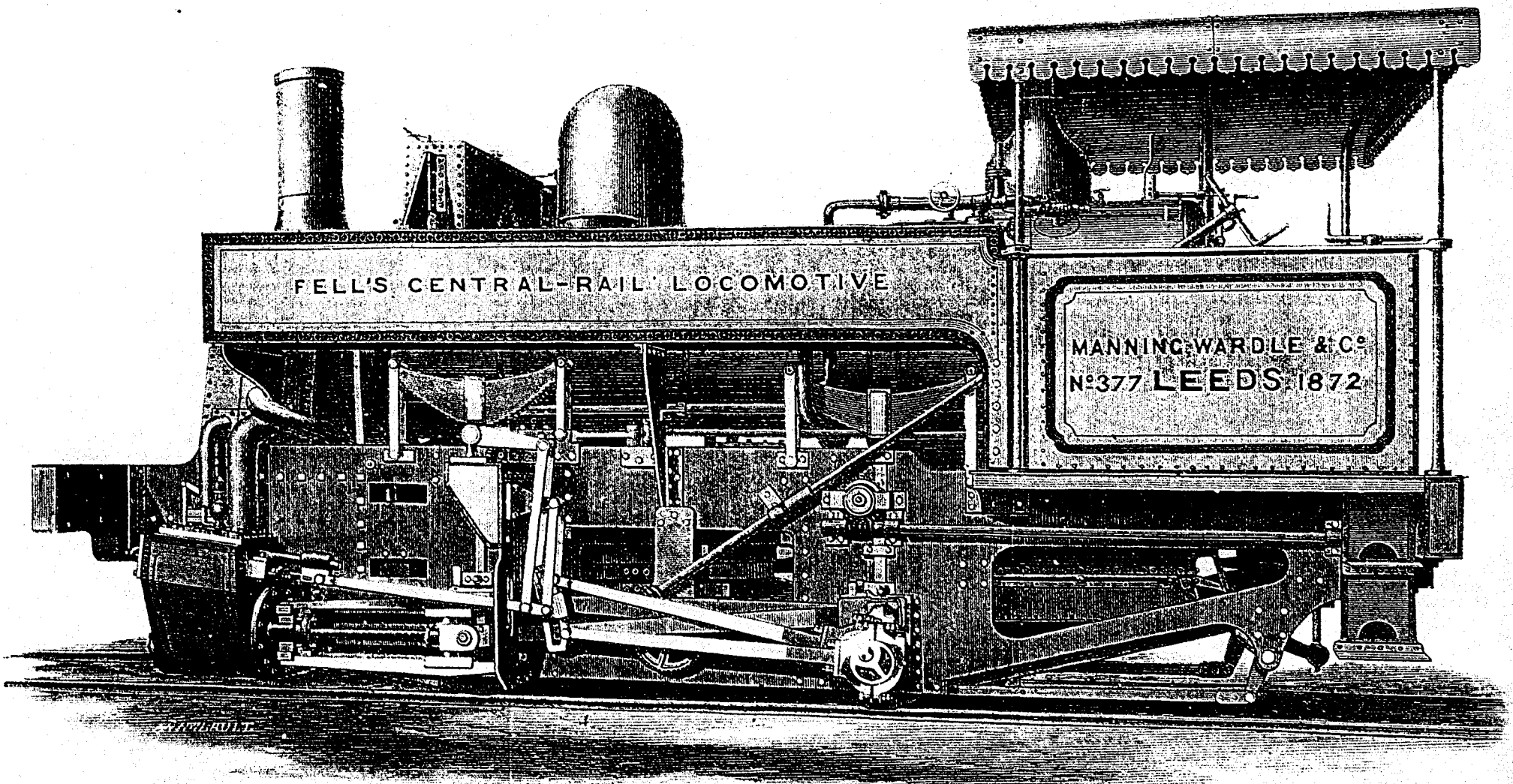
mise its weight. The tension is from 2½ tons to 5 tons and calls for the greatest rigidity in the framing to prevent the guides from being thrown out of position by the varying tension of the blades.

The top wheel has its axis supported at both ends, and is arranged with a vertical adjustment of 20 in. The top shaft is of steel, 4 in. diameter, the lower one of forged iron, 4½ in. diameter, while the bearings are of hard brass throughout. The front view shows the position of the log carriage, which is generally of special arrangement, to suit the character of the work to be performed. Continuous feeding rolls are some-

times used for re-sawing deals and boards.

The mill corresponds very nearly to one built in 1871 for Mr. J. J. Van Pelt, of New York, for cutting ship and other heavy timber, following the curvature of the logs, and which has now, for five months, been in successful operation, performing a kind of work that was thought to be impracticable except by hand sawing. We may notice that the reduced scale of 1-48th gives a false impression as to the size of the mill, which far exceeds that of those commonly in use.

For description of Sand Blast, &c., see page 74.



CENTRAL RAIL LOCOMOTIVE FOR THE CANTAGALLO RAILWAY, BRAZIL.