



TRIAL OF STEAM TRAMWAY AT BUCKHURST HILL.

The engines are fitted with an ingenious hydraulic arrangement, by means of which the body of the engine is preserved in a horizontal position when it is either ascending or descending an incline, so that the tubes are not uncovered by the water, the level of which is indicated outside. The power of each of the engines already made has been tested up to 300 tons, which has been drawn by them on the level. The carriages are of three classes; the passengers enter from the sides and are seated back to back.

With an engine, a second and a third-class carriage, and a goods waggon, of the type we have described, an interesting trial was recently made in the presence of a number of engineers and other scientific gentlemen. In order to test the system a strip of land has been obtained in Epping Forest, at Buckhurst Hill, where a piece of tramway road, 1,710 ft. long, has been laid. The line is on an incline for nearly its whole length, the steepest gradient being 1 in 18½ and the average 1 in 22½. Up and down this line and round these curves, a number of runs were made, both with full and empty carriages, at good speeds, and with perfect success. Considering the saturated state of the land on which the line is made, the train ran with remarkable steadiness, giving a good earnest of what it will do on a sound piece of road. The time occupied in the run was exactly 60 seconds, or at the rate of about 20 miles an hour, starting and stopping included. The system has been developed to its present degree of perfectness by Mr. F. H. Trevithick, the engineer to the Lisbon Tramway Company. The engine was built by Messrs. Sharp, Stewart and Co., and was an excellent specimen of workmanship.—*Graphic*.

TO MAKE PALE MAHOGANY DARKER.—The old way of darkening pale mahogany is to cover it with a wash of lime water, or milk of lime. This method is, however, open to the objection that some pores will become filled up with solid lime, and show afterwards white lines and white points, very difficult to remove. Other alkalies, like potash and soda, are not open to this objection, and will darken some kinds of wood more or less. A solution of bichromate of potash, in water, will also darken wood, but when the wood contains tannic or gallic acid it will be blackened more or less. The best method is, perhaps, simply a stain made of a decoction of logwood in water, a tincture of dragon's blood in alcohol, alkanet root in turpentine or oil. We have often used, with great success, burnt sienna, or Vandyke brown, finely ground in linseed oil, and rubbed in with a flannel; the sienna gives a richer red-brown, the Vandyke brown a darker brown. The latter method may be used to stain any kind of wood, and is in many cases preferable over stains put on by watery decoctions of dyewoods.—*Manufacturer and Builder*

IRON BOLTS IN WOODEN STRUCTURES are always liable to be attacked by rust, which diminishes their size and loosens their hold. The simple remedy of coating the bolt holes with a mixture of zinc filings and grease galvanizes the iron and thus preserves it from oxidation.