



The load upon the beam was gradually increased until it amounted to 17,050 lbs., when the beam failed by the crippling of the fibres on the compression face, Figs. 60, 61. The load was still increased until under 19,140 lbs. the beam again failed by the tearing apart of the fibres on the tension face.

The maximum skin stress corresponding to the load under which crippling took place is 6752 lbs. per square inch.

The total compression of the beam under a load of 17,050 lbs. was .24-in., so that taking the effective depth to be 11.01 ins., the corresponding maximum skin compressive stress would be 6886 lbs. per square inch, the corresponding skin tensile stress being 7193 lbs. per square inch.

Assuming the usual law to hold good for the whole of the effective depth, the maximum skin stress would be 7050 lbs. per square inch.

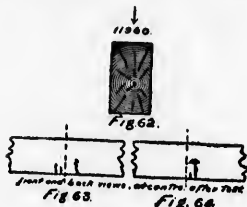
The co-efficient of elasticity, as determined by an increase in the deflection of 1.435-in. between the loads of 2000 and 12,000 lbs., is 1,786,000 lbs.; it is 1,858,400 lbs., as determined by an increment in the deflection of .84-in. between the loads 3500 and 9500 lbs., and is 1,681,100 lbs., as determined by an increment in the deflection of 1.135 in. between the loads of 2000 and 10,000 lbs.

Table K shows the several readings.

The test occupied 26 minutes.

The weight of the beam on March 10th was 379 lbs. 10 ozs., or 44.20 lbs. per cubic foot; upon April 20th, the date of test, the weight was 322 lbs. 8 ozs., or 37.55 lbs. per cub. ft., showing a loss of weight at the rate of .1622 lb. per cubic foot per day.

Beam XXIX. This beam was cut from the heart of the tree, and was tested March 13th, 1894, with the annular rings as in Fig. 62.



The load upon the beam, was gradually increased until it amounted to 11,960 lbs., when the beam failed by the crippling of the fibres on the compression face, Figs. 63, 64. The load was still further gradually increased to 12,460 lbs., when the beam was completely fractured by the tearing apart of the fibres on the tension face.

The maximum skin stress corresponding to the breaking load of 11,960 lbs. is 4818 lbs. per square inch.

The total compression of the timber at the centre was .15-in., so that taking 11.1-in. as the effective depth, the maximum skin compressive stress would be 4883 lbs. per square inch, the corresponding skin tensile stress being 5016 lbs. per square inch.

Assuming the usual law to hold good for the whole of the effective depth, the maximum skin stress would be 4949 lbs. per square inch.

The co-efficient of elasticity, as determined from an increment of .86-in. in the deflection between the loads of 1000 and 5000 lbs., is