

#### GRADES AND CURVES.

They shall be in accordance with the proposed project. The grades shall never exceed  $2\frac{1}{2}\%$ , and the curves cannot have a radius less than 87.75 M. (288') which corresponds to a central angle of  $13^{\circ}-5'$  per cord, of 20 M. (65'-7"); or 288 feet radius, corresponding to a central angle of  $20^{\circ}$  for each cord of 100 feet. However, these curves of minimum radius, cannot be put on grades higher than 2%, and when the maximum grade of  $2\frac{1}{2}\%$  is used, the curves shall be of the greatest possible radius, and never less than 109.69 M. or 360 feet. This shall be done only in very necessary instances, with the previous examination and approbation of the Government. Between the curves in opposite directions there shall be a minimum tangent of 30.47 M. or 100 feet. The same minimum tangent shall be required on both sides of the bridges.

Should the excessive cost make the fulfillment of this condition impossible, the tangent may be reduced to one half, with the previous approval of the Government.

#### RAILS.

They shall be of Bessemer steel, with a weight of 50.4 lbs. per M., or 50 lbs. per yard. The joints of the rails shall be between the ties and in couples, for which purpose there shall be a number of rails shorter than the others. The joints shall be fastened by means of screws and nuts equal to those actually used in the Atlantic Railway.