

AMERICAN PERMANENT WAY.

Fig G

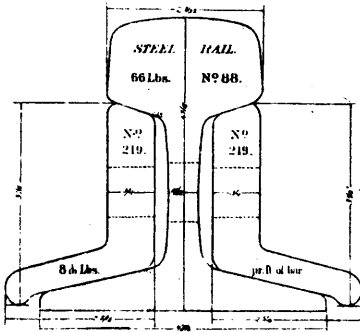
Chicago, Burlington & Quincy
R. R. 1880.

Fig J

Dayton & New R. R. 1882

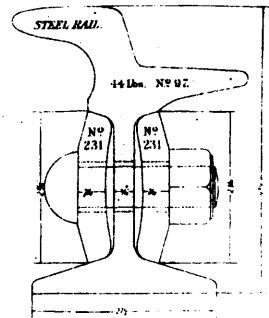
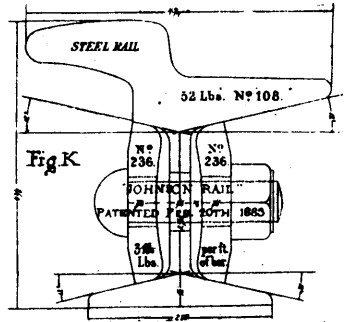
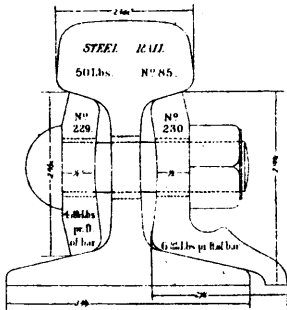


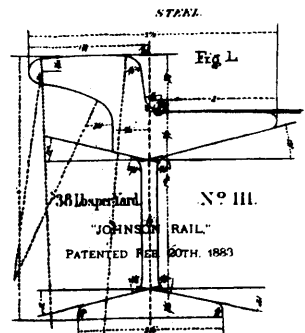
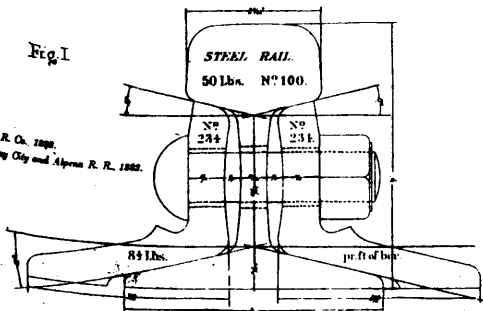
Fig H

R. T. Wilson & Co. 1882.



Accompanying paper of R. T. Wilson & Co. & Co.

Fig I

Penn. R. R. Co. 1880.
Detroit, Bay City and Alpena R. R. 1882.

The great scarcity of hard woods in some sections necessitates, however, the use of softer and inferior material, hemlock, spruce, the various kinds of pine, etc., and hemlock, in particular, is used in large quantities, being very abundantly distributed over the country, notwithstanding

that it is one of the poorest woods for the purpose, and liable to very rapid and deceptive decay, the interior going first, leaving only a hollow shell of good timber outside.

In Canada, tamarac and cedar are also used for ties. Tamarac can only be obtained in cer-