"On steel tired wheels under coaches or tenders, a flanged steel back shoe, with inserts or chilled areas in the outer tread and flange, exercising a moderate tire dressing effect, will prove more economical than a plain cast iron shoe.

"For locomotive driving wheels, a steel back flanged brake shoe with hard cutting inserts in the flange way and outer tread will prove far more economical than the plain cast iron shoe.

"Heavy and high speed brake service make a steel back shoe absolutely necessary on the score of economy and safety."

Chairman,—

"New business." Nil.

"Reports of special committees." Nil.

Chairman,—

We have two subjects for discussion this evening: Subject No. 1, Compound vs. Simple Engine.

(a) Cost of maintaining consumption of fuel and water considered in conjunction with ton mileage, is the compound as economical as the simple engine?

Subject No. 2: Cause of Boiler Explosion.

(a) Allowing that a Crown Sheet has become dry and overheated, is the liability of explosion increased by the injection of cold water?

I shall be glad to hear from Mr. MacNicol.

Mr. MacNicol,—

In the year 1848 Mr. T. Cardock, of England, designed a twin cylinder compound locomotive engine, which has a single valve governing steam admission and exhaust. Two years later, in 1850, a Mr. J. Nicholson, of England, designed a compound locomotive engine that showed a saving of 20 per cent. in fuel consumption, ever since new designs of this class of engines have continued to be brought forward. The first possibly to appear in America was on the Erie Railroad, where in 1867 a simple switch engine was converted into a four cylinder tandem compound.

The Remingtons of New York State in 1870 produced a two cylinder locomotive compound with a controllable intercepting valve, but no reducing valve. Good results were obtained when working compound, but jerked badly when working simple.

In 1887 an automatic intercepting valve was in use in England and France. The principle features of this design was that, when receiver pressure attained a certain point engine went into compound.

This shows the compound locomotive engine advancing slowly step by step to a more perfect machine which in 1899