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## NEW COMPOUND RAIL.

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BY SANDFORD FLEMING, C.E.

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The improvement on railway construction now referred to consists in forming a continuous rail, of uniform strength throughout its length, by means of two light bridge rails, placed the one over the other, and breaking joint. The lower rail is inverted, and rests in grooves cut in the ties or sleepers to receive it; the upper rail is placed immediately over the lower one and secured to it by means of clamps or bolts; wrought iron cores are inserted in the internal cavities at each of the joints, for the double purpose of giving vertical strength and locking the two halves so as to prevent any lateral motion.

The necessity of improving the mode of constructing "The Permanent Way" has doubtless forced itself upon the attention of those who daily witness the care and labour bestowed on the rail track to maintain it in a serviceable state, and more especially of railway proprietors, who too frequently learn at their annual meetings that the earnings of the company are very largely absorbed in the account headed, "Track Repairs" or "Maintenance of Way."

The annual cost of keeping in efficient repair what is termed "The Permanent Way" of railways is very great. It is found, when proper allowances are made for the deterioration of the iron rails and destruction of the ties or sleepers, to amount to about half as much as all the