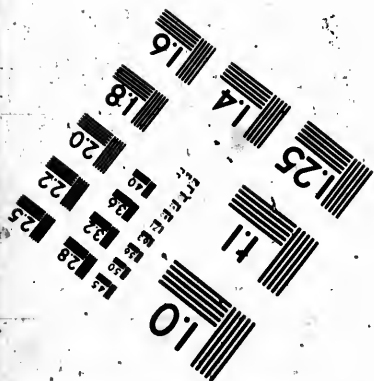
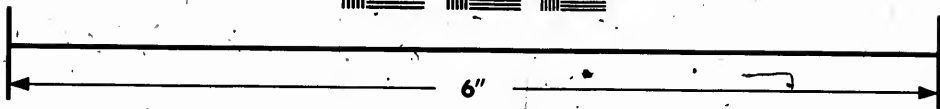
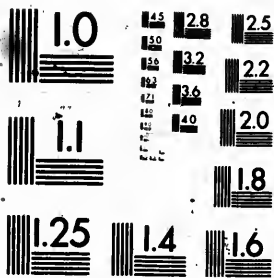


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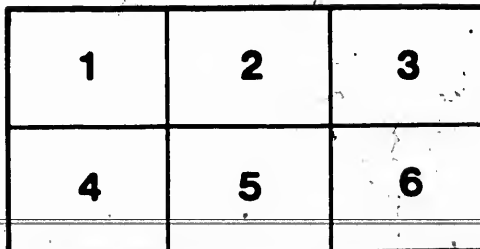
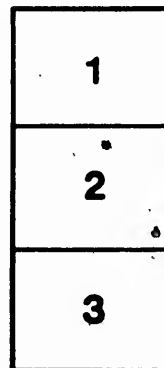
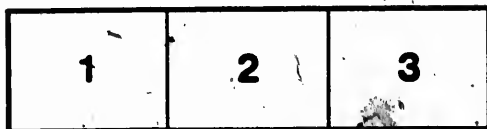
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"Ray's Patent Self-acting Car-Coupling."

WELLAND, August 31st, 1871.

SIR—

The above name affords but an imperfect idea of the nature and object of this invention. The operation of the Coupling and Brake will be better understood by reference to the annexed engravings and descriptions:

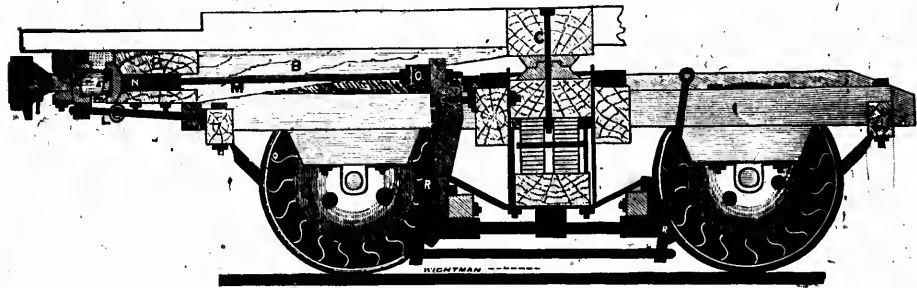


Fig. 1.

Fig. 1, is a cross section of Truck, Coupling, Self-acting Brake and part of Car Body.

Fig. 2, is a perpendicular view of parts of Two Cars coupled together, showing location of King-bolt and centre of Concentric Circles, and broken out so as to show Coupling and Brake Fulcrum; and part of Buller broken out to show Swiveled Screw and form of Coupling Box.

Fig. 3, is a front view of Freight Car and Coupling, showing its adaptability to Cars of different height.

Fig. 4, is a perspective view of Coupling, wrought-iron Draw Bars, (cast into Buller Head), and Loosening Gear.

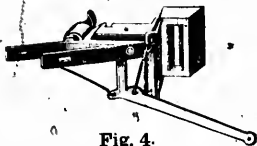


Fig. 4.

The Self-acting Brake (Fig. 1.) is adapted to passenger cars:—the operation of same will be readily understood by reference to engravings. When the motion of the Train is retarded by the reversion of the Engine or from other causes, the momentum of the Train causes the Buffers to press against each other, forcing back the rod **M** and springs **O**, which lay against the buller-key **N**, and forces back the governor **P** which works on fulcrum **S**, (as shown in Fig. 2) and brings the other end in contact with handle **R**, thus putting on brakes on those cars that have their fulcrums thrown forward; and it is not intended to supersede the hand brakes but to stand as a guard brake in case of accident or sudden emergency.

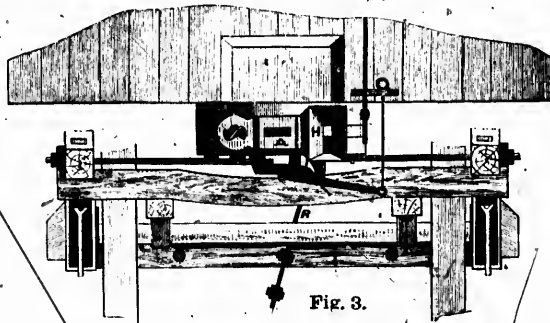


Fig. 3.

The Buller Head **A**, is a solid casting in front of which are a perpendicular groove and projection fitting a corresponding groove and projection in opposite Buller. The Buller has a lateral motion between the parts of frame-work **B** (which is securely attached to the Car body) and is composed of parallel arcs, said arcs being portions of concentric circles whose common centre is not at the king-bolt **C**, but at the point **D**, in the line between king-bolt **C** and centre of Buller Head **A**. The length of radius varies in proportion to the distance between the king-bolt on any Car, and is so determined that the front surface of buller head shall always be at right angles with the track.

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