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Improved Head-rest.

Riding upon the rail is very fatiguing, especially if one has to take a long journey. After a few miles the scenery, what one can see of it, becomes monotonous, and fences merging into white lines, trees bending and whisking their branches in the wind, houses, cattle, men, and the thousand and one objects—animate and inanimate—make one giddy and fain to seek refuge in closing the eyes. As cars are ordinarily built the seats are too low behind to afford any support to the head, and after vainly leaning back or frantically bolting forward, the weary traveler, is obliged to relinquish the idea of getting even "forty winks," and is compelled to grin and bear the jolting and concussion as well as he can.

That is ordinarily; now he may provide himself against the evils and annoyances above mentioned by the use of the head-rest shown in this engraving. A distinguished individual of literary tastes and luxurious habits is represented enjoying both with great satisfaction.

The object is to provide the railroad traveler with an easy and ready mode of procuring rest or sleep while riding in railway cars, either day or night. With some propriety it might be called a portable pocket berth, as it is susceptible of being carried about the person or within any common traveling satchel or bag, and may be attached to, or detached from, the back of any ordinary car seat, and raised

or depressed to any desired position for the head in a moment of time. With it one may pass a day's or a week's ride in any railway car without experiencing any thing like the usual fatigue.

The rest is externally light, weighing but a few ounces, is made of the finest spring steel highly polished, and is upholstered in a handsome manner in conformity with first class cars.

When it is considered that one will last a life time, and that the ordinary fatigue from riding in railroad cars is reduced to comfort and pleasure by their use, the portable rest will be esteemed and approved of by the public generally.

This invention was patented on July 4, 1865, by W. R. Phelps, through the Scientific American Patent Agency; for further information address him at No. 34 Barclay street, New York.

Savings Banks in England.

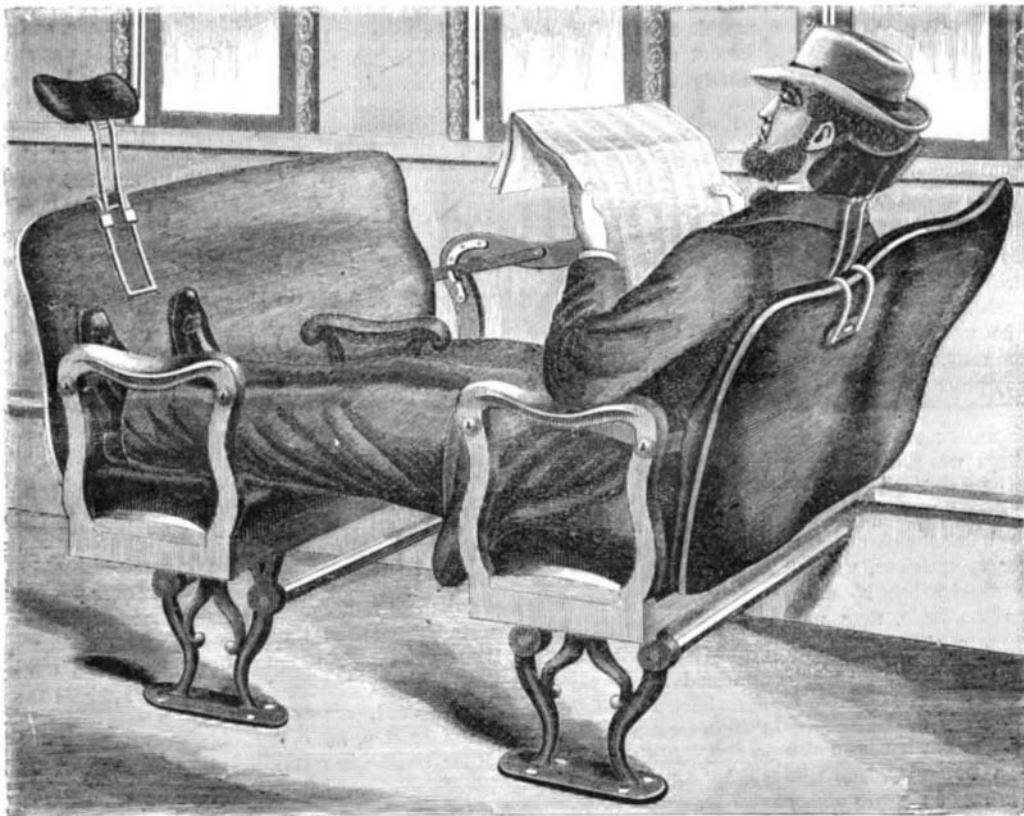
Charles Ryland & Son's *Iron Trade Circular* (London) says:—

"It is indeed a noticeable fact that the amount deposited and invested in savings banks and friendly societies, now reaches ninety-three millions and upward of a tenth, an amount equal to about one-eighth of the national debt. As this sum is invariably invested in consols, and is steadily on the increase, it is not difficult to estimate the effect it must have in steadying the price of the funds, and replac-

ing, by a Government enforced investment, the withdrawals made by independent holders, who retire their money from securities paying so small an interest, to others which they regard as equally secure, while they give a larger return.

Large Profits of the London Underground Railroads.

The last number of the *London Engineer* makes the following statements in regard to the Metropolitan Railway:—



PHELPS' TRAVELERS' HEAD-REST.

"Among our railway systems the Metropolitan is *sui generis*. It is unique in its mode of construction, in the district it serves, and in its working. At the top of the list in mileage traffic receipts and, we may almost add, in the value of its shares. It is peculiar, inasmuch as the whole of the line is constructed in or under the metropolis, many portions of it passing under densely populated districts and busy thoroughfares. The number of passengers it conveys is perfectly enormous. In the last half year the persons carried on the Metropolitan were 7,462,823, that is, two-and-a-half times the population of London. The mere increase in the number of passengers conveyed in the last, as compared with the preceding, half year, was equal to the united population of a score of the next largest cities and towns in England, including Manchester, Liverpool, Birmingham, Newcastle, etc.

"The third-class passengers, in the number stated, were 5,110,823, or nearly 69 per cent of the whole. The total capital of the company in ordinary and preference shares and debentures, amounts to £2,800,000, but will amount, it is expected, to £5,400,000, when the whole system is completed. As to the soundness of the scheme and its profitable character, it may be mentioned that in the first year of its existence the shares were at 50 per cent discount, whereas they have been sold at upward of 40 per cent premium. The dividend for the last half year was at the rate of

7 per cent per annum. The revenue has risen from £15,000 for the half year ending December, 1863, to £41,000 for the half year ending June, 1865. The traffic per mile presents an extraordinary contrast with that of most other railway companies. The Metropolitan receipts per mile per week are as high as £703. The nearest approach to this is by some of the lines which have Metropolitan and suburban traffic, but all of these fall far short of it. The Black-wall line reaches about £394 per mile per week, and the North London £373, whereas the great companies having London termini, and other large companies in other parts of the country, have traf-

fics which only yield receipts ranging from £60 to £160 per mile per week. In Whit week last the Metropolitan carried 370,843 passengers, and in one day alone—the Monday of that week—it carried 83,440 and, as a result of the perfect system of signaling adopted on that line, without loss of life or casualty to a single passenger. The trains are now very frequent, but it is expected that when the system is completed, they will be run each way at intervals of two minutes, which may be done with perfect safety, inasmuch as no train is allowed to pass from one station to another until the signal has been received that the line is clear between the stations. The Metropolitan forms an important part of what is popularly known as the 'inner circle,' which gives

access by railway to all directions in general, and leads to no place in particular. This 'circle,' belt, or link, is far from being a true circle. On the map it has somewhat of the appearance of the trunk and head of a 'porker,' or a hippopotamus with an unduly elongated snout."

HENRY BESSEMER ON HIS PROCESS OF MAKING STEEL.

At the recent meeting of the British Association, at Cheltenham, Eng., Mr. Henry Bessemer read a long paper on the manufacture of steel by his process of blowing air through molten cast iron to burn out the carbon—a process which has been repeatedly illustrated and described in the *SCIENTIFIC AMERICAN*, and which has been recently introduced into this country by Messrs. Winslow, Griswold & Holley, of Troy, N. Y. It will be remembered that Mr. Mushet claimed to be the discoverer of that modification in the Bessemer process which made it a practical industry—the introduction of manganese. On this point Mr. Bessemer makes the following statement:—

THE AUTHOR OF THE MANGANESE IMPROVEMENT.

In the old Sheffield process the original quality of the Swedish charcoal iron employed governs the quality of the cast steel made; consequently, £36 per ton is freely given for the high class Danamora iron, while other brands of Swedish charcoal iron may be