

NEW ELEVATED RAILWAY.

In all city streets where there are two surface railway tracks there is a space between them of little use except for direct crossing. To utilize this space is the object of the elevated railway illustrated on this page.

It carries two tracks, supported upon a single line of columns. Taken in combination with street tracks below, it practically solves the question of rapid transit. The upper cars move at high speed, make few stops, and carry people quickly to long distances.

The lower cars move more slowly, stop often, and take local travel chiefly. Long distance passengers can ride on the surface cars to the nearest elevated station and then take an express train.

The drawings will explain the construction. It is not designed to carry locomotives or such cars as are used on the elevated railways of New York and Brooklyn, but cars not much heavier than street cars, drawn by electrical or cable power.

Single columns, placed between the surface tracks at distances of about 80 feet apart, carry triangular girders, to whose sides are riveted brackets, carrying the tracks, which are made purposely without cross ties and very open, so as to obstruct light and air as little as possible.

These brackets are extended above the tracks and carry longitudinal timbers which form safety guards, entirely preventing cars from falling to the street in case of derailment; which itself is not liable to occur, as the usual guard timbers are placed on each side of the rails.

The only question that can arise is whether the unbalanced weight of one car or one train of cars, with wind pressure added, can be resisted by a single post. To do this only requires that the post should be stiff enough not to bend, and the foundation large enough not to upset. With the light rolling stock proposed, this is not difficult.

The column is embedded in a block of concrete during its construction. This block is all below ground, and can be made as large as necessary. Both calculation and actual experiment show that this is entirely practicable.

The clear space left between street cars is about 28 inches, and an 18 inch wide post can be set between, leaving 5 inches of clearance. This would require wire guards to be placed over the windows and along the inner side of platform, as is done on most cable roads. This is the only change necessary.

If the street cars use overhead electric wires, this structure can support them at every five feet if required, and in a position where they cannot be broken or cross other wires.

If the cars above use electric motors, the direct wires can be placed in safe position, and a return wire will keep the current from the structure.

The advantages of this elevated railway, as claimed by the inventor, are: It more than doubles the capacity of existing street lines. It has a graceful appearance and gives the least possible obstruction to light and air. It gives perfect safety in operation. It carries electric wires in safety. It can be built for less than any other form of elevated railway. The inventor, T. C. Clarke, consulting engineer, 1 Broadway, New York, will give estimates of cost and other information.

Wire and its Uses.

Inventive genius is constantly finding new uses for wire, and we are quite justified in anticipating that it will be found that in 1890 we had advanced but a little way beyond the threshold in ascertaining its adaptability. Tensile strength and flexibility are qualities that fit it for a great variety of uses, and when we add that it is comparatively fireproof, we have another important property in extending its usefulness. By new processes of manufacture wire can be cold-rolled to almost any degree of

fineness from inch rods and at greatly reduced cost, thus increasing its cheapness and at the same time its strength in resisting longitudinal strain. Who would have anticipated, a comparatively few years ago, the

certain to be a rapidly increasing quantity. The telegraphs of the world are now said to exceed 500,000 miles, but with the rapid growth of applied electricity for lighting and the distribution of power, even the enormous quantity of wire required for the maintenance and natural extension of telegraph systems would be but a fraction of that needed in the whole field of electrical industry.

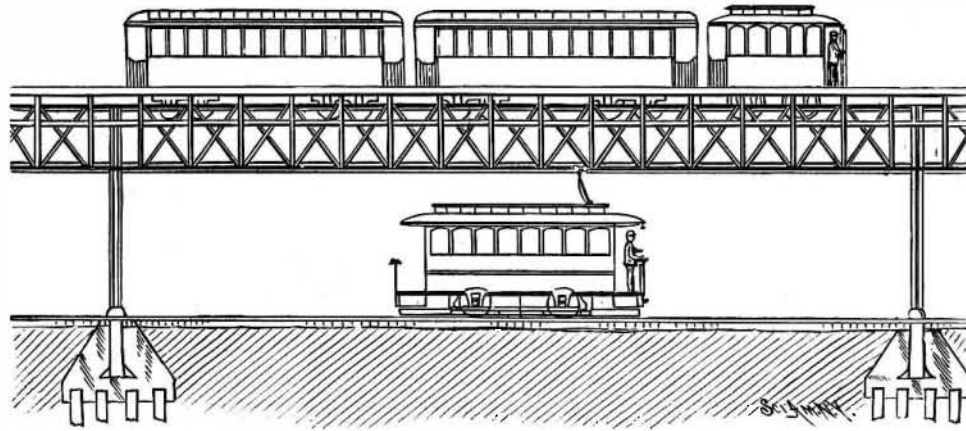
Then to what diverse and almost contradictory purposes do we find wire applied in modern times. Experiments in the strengthening of heavy ordnance by wrapping wire while under tension around the steel cylinder are being conducted with reasonable prospect of success, and, if successful, will add to the efficiency of an instrument of destruction, while from the same mill may come the wire which, woven into the form of a mattress, may

bear the weight of some unhappy creature struck down by that wire gun of modern warfare. It is woven into door mats, which are rapidly gaining in popularity by reason of their cleanliness, and this has led to the employment of woven wire as floor covering in other respects, notably in railway carriages, in hallways, and elsewhere where many feet pass. For such homelier purposes we may confidently look for a larger extension of its use, and in ways which we do not anticipate at present. Its advantage over fibrous material, in not retaining the dirt falling upon it, must suggest its employment in many ways where now the former is used.

Two very modern uses of wire which are widely different in their ultimate objects, but closely allied in the means employed to fit the wire for those diverse objects, may be mentioned. One is its use as a roofing material, and the other as the foundation for stage scenery. In both cases its lightness, durability, and safety from fire are elements of distinct advantage. In the one case the meshes are coarse, and in the other very fine, but in each the meshes are filled with a preparation which adheres firmly, making a continuous surface without crack or seam. For the roof, this preparation may be semi-transparent to admit light, or opaque, but for the scenery body it is made opaque, to prevent being seen through. The wire body thus prepared is the ground upon which the scene painter lays on the colors for the gorgeous spectacle, the beautiful glade, or the interiors which charm the playgoer. It is almost as flexible as canvas, and should greatly decrease the peril of fires in theaters; its use would certainly lessen the awful swiftness with which a theater fire started sweeps through the tinder of the flimsy wings and flies.

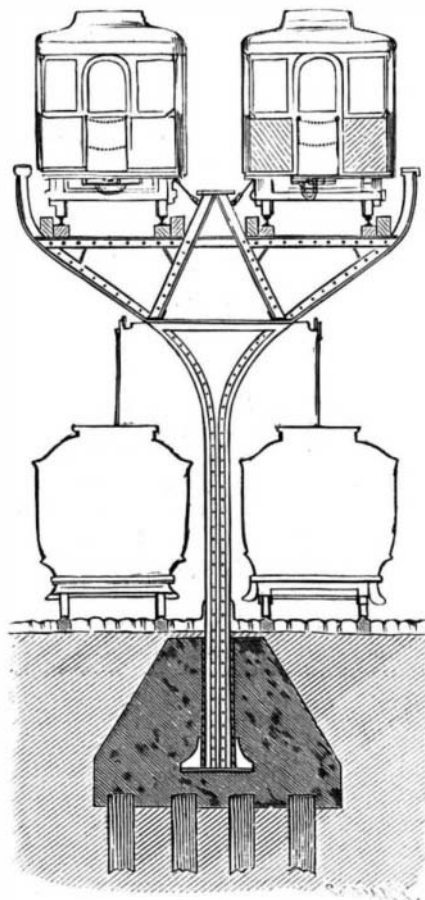
Yet another most recent use of wire, which has been exemplified at some of the latest exhibitions in London, is in the construction of collapsing into a very small fraction of its original bulk for return as an "empty." The strength, durability, and convenience of this contrivance should insure it a welcome and an extensive use. We have by no means exhausted the modern uses of wire. Braided or woven it is made into belts for driving the very machinery which produces it. It forms a material part of the dynamo that lights the factory, and it carries the directing voice of the manager from his office to the men who stand at the ponderous rolls and take the product from their jaws. It is used to stiffen the garments we wear, to support the flowers and tiny birds on the hats of women, to cage our singing birds, for the blanks of screws and nails, and, in short, for innumerable purposes we cannot mention here and now.—*Ironmongery, London.*

A PINT of warm water taken on an empty stomach in the morning is the safest and surest of all remedies for habitual constipation. It dissolves the fecal matter and stimulates peristaltic action, thereby giving a normal action without pain. If tongue is coated, squeeze a lemon into the water and drink without sweetening.



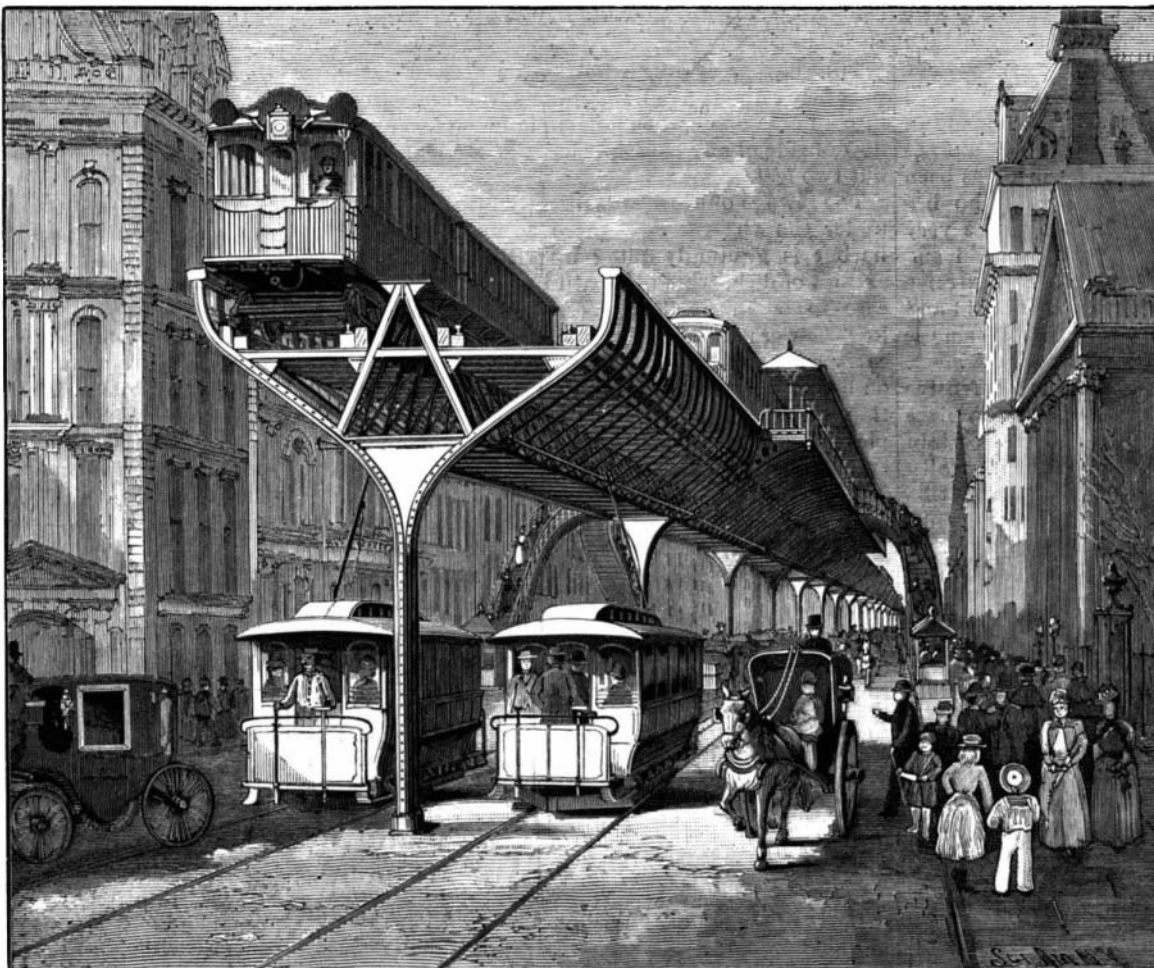
DETAIL ELEVATION OF CLARKE RAILROAD SYSTEM.

creation of a new industry in the manufacture of barbed wire for fencing, which continues to flourish



CROSS SECTION SHOWING ELECTRIC CONNECTIONS.

in spite of its many detractors? For electrical purposes alone the use of wire, already so extensive, is



THE CLARKE ELEVATED AND SURFACE RAILROAD SYSTEM.