rent of electricity was transmitted from Niagara Falls electric power plant, April 16, 1895.

Many messages of congratulation from governors of the several States and mayors of the various cities were sent over the new cable.

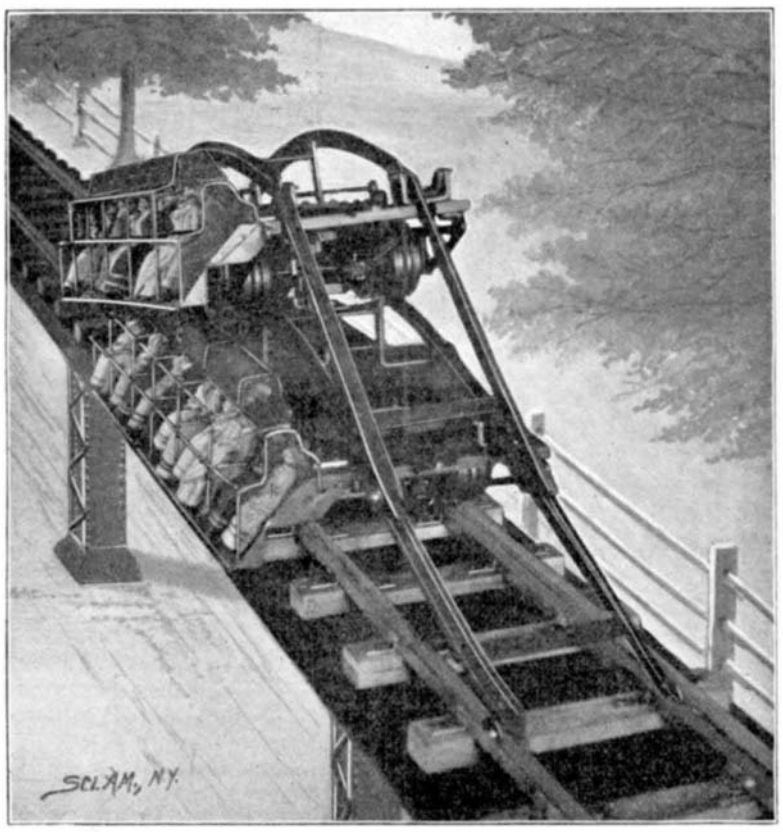
A severe storm at Honolulu prevented the landing and splicing of the cable on the morning of July 4, thus delaying the sending of the message all day. After landing the end of the cable connecting Midway Island, Guam, and Manila, the cable steamer "Anglia" began paying out cable from the shore for connection with the end of the deep-sea strand buoy seventeen miles off shore. At this point the two strands were spliced.

A NOVEL AMUSEMENT APPARATUS.

From time to time we have described in these columns various forms of apparatus which are used at seaside resorts for the attraction of the multitudes that congregate there in the hot summer months, and which display a degree of mechanical ingenuity and understanding of physical laws that in some cases might well have been applied to better advantage in other directions. To the "loop-the-loops," "scenic railways," "shoot-the-chutes" and other contrivances with equally vivid and enticing names must now be added an apparatus fully as ingenious as these and fully as competent to tickle the sluggish sensations of the *blasé* New Yorker. This apparatus is intended to furnish the delightfully horrible experience of a head-on collision, without, however, killing or maiming the passengers who are seated in the railway cars employed. The railway system by means of which this end is attained is the invention of Mr. P. K. Stern, a New York electrical engineer. His system is remarkable chiefly for the daring conception which it expresses and for the exceptional skill shown in devising mechanism absolutely safe in its operation. In Mr. Stern's railway system a single track is used, on which railway cars are caused to travel, either in the same or opposite directions. When one car meets another, it simply rides over the roof of the opposing car on specially provided rails, gently rolls down on the other side upon the track, and proceeds upon its way as if it had never left the roadbed. The photographs herewith reproduced were taken from an electrically-driven working model, made strictly according to scale.

The cars, although they run upon wheels, are really traveling bridges with overhanging compartments for the accommodation of passengers. Over the framed structure of the cars thus constituted, an arched track is carried, securely fastened to the car and serving the purpose of providing a roadbed for the colliding car. This superimposed track is built in accordance with well-understood principles of bridge construction. The outer ends of each superimposed track are designed to form with the surface of the roadway an overhead switch provided with specially formed pilots and with a horizontal axis and a vertical axis. Upon each horizontal axis the respective outer portions of the arched track can swing vertically, and upon the vertical axis the track can swing to a limited extent from side to side. The pilots of the superimposed track are automatic in their operation. When they strike the car ahead they immediately travel up the inclined superimposed way of that car, thereby guiding the car to which they are themselves attached. After the superimposed car has passed over the car below it, the rear pilot as it descends, will be lifted and will gradually drop by gravity to the roadbed.

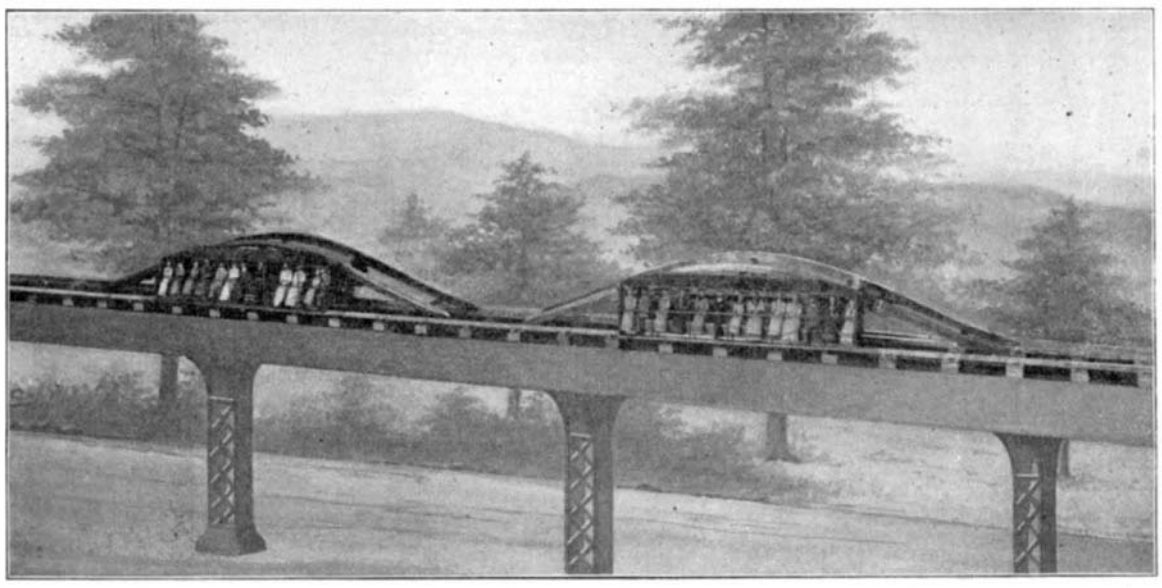
In the limited space at our disposal, it is impossible to give more than a general idea of the construction and operation of this remarkable railway system. A few features should, however, be specifically mentioned. The permanent roadbed upon which the cars normally travel and the superimposed track on each car are of different gages. The wheels of the car resemble those which were once used on old-fashioned cable railways, formed as they are with a broad middle flange traveling in a centrally grooved track, with lateral portions of smaller diameter sustained by flanges which flank the central groove of the track.



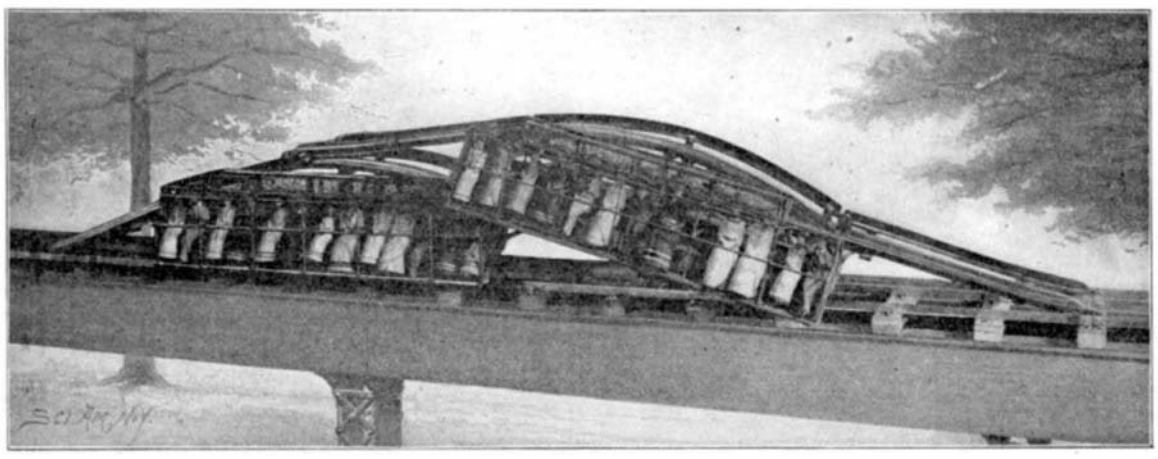
AFTER THE COLLISION. THE ONE CAR RIDING OVER THE OTHER.

As our illustrations show, the forward ends of the pilots of the superimposed tracks are provided with rollers and skids which are so designed that one car shall mount the other without shock. The skids gently ride up the inclined track of the car ahead and sufficiently elevate the rollers of the pilots to permit them to run upon the superimposed narrow gage track without jar. The car itself follows with a motion equally as gentle. In actual practice cars of 11 feet 6 inches in length will be employed, the extreme length being 43 feet.

The passengers will find accommodations in the car bodies arranged along each side of the traveling structure, and provided with a removable roof and sides in order to permit ready means of ingress and egress. The top of the rail is only 6 feet above the base rail. In actual practice the cars will be run at a speed about 10 to 15 miles an hour and will be caused to collide at about 8 miles an hour, which will be quite sufficient for amusement purposes. The inclined tracks with which each car is provided form a gradient of 25 per cent. The actual power to mount such a grade is probably less than that required to send many a railway train around a sharp curve. The peculiar, arched structure which surmounts each car, when considered in connection with the permanent track itself, forms an undulatory roadway upon which the cars travel with a motion very much akin to that of a boat riding on a billowy sea. The motorman is to take his seat on the roof of each car at about the middle, at which point he will have a clear view of the track ahead and behind him. When in operation a central slot will be used through which a plow works, which will take up the current for transmission to the motor. The rails will be used as a return.



THE CARS JUST BEFORE IMPACT.



THE OVERRIDING CAR ON THE DESCENT.

Edison on X-Rays.

New York newspapers have been publishing some statements said to have been made by Edison on the physiological effects of X-rays. Mr. Edison states, according to these accounts, that such is the destruction wrought by the rays that one of his laboratory assistants, Charles Daily, was so seriously injured that it was necessary to amputate his left arm and the fingers of his right hand. The physiological effect noted is the direct result of the killing or paralyzing of the white corpuscles of the blood. Mr. Edison himself has suffered not a little from stomach trouble as the result of experiments with X-rays.

Mr. Edison's observations are confirmed by the experiences of two physicians in the radiograph department of the London Hospital. These physicians have fallen victims to the X-rays and have sustained very severe injuries. Gloves with lead foil sewn into the back have been employed in London, but have been found to impede the hand to such an extent in surgical work that it was necessary to abandon them. Dr. Wilson, one of the two men who used to make direct examinations with the rays at the hospital, explained that he had not carried out any X-ray work for a year and a half; yet his hands showed little signs of healing. Indeed, he seriously doubted whether his finger-nails would ever grow properly again. The first symptom of X-ray injury is a troublesome inflammation of the hands, and insomnia, accompanied by swellings resembling chilblains. The nails are affected to such an extent that a festering ridge is formed down the center. After treatment, the nail seems partially to perish. Apparently the injury to the matrix impairs future growth.

The eyes, too, are apt to suffer from the rays. Pathologically considered, the results of the X-rays seem to be cumulative. Up to a certain point they are highly beneficial; beyond that, just as highly injurious.

At Guy's Hospital announcements have been made which directly refute the experiences of the London Hospital men and those of Mr. Edison. It is stated that the wonderful cures at Guy's made by the X-rays in the treatment of rodent ulcers are attributed by several of the authorities to the enriching action of the rays on the blood by the increase of phagocytes. The hospital doctors seem to think that Mr. Edison has confused X-rays with ultra-violet rays. About 1,200 persons are treated annually by X-rays at Guy's and no case has been reported where injuries resulted from the treatment.

A ball of india rubber immersed in liquid air becomes brittle, and if dropped to the floor breaks like glass. A lead ball acquires elasticity and will rebound like the rubber in its normal state.