ENGINEERING

Million Dollar Street Car Banishes Many Annoyances

A NEW street car representing four years of research and a million dollars in cost was exhibited in Cleveland. The car is a street car rider's dream of the millenium. Every avoidable annoyance incidental to transport by urban electric car has been removed from the new development.

Forced ventilation is supplied, the seats all face forward and are of the familiar motor-bus type: deep, soft and upholstered at side and back in leather. The windows really move; not by two-handed brute force with the help of a crowbar, but like windows in automobiles. The first high step getting into the car has been replaced by stairs like those of the home. Wherever one stands in the car there is a handrail or grip so near that not even one step is necessary to reach it. Lighting is indirect and provides three times normal street car illumination, without glare.

Noise is diminished within the car by replacing steel coiled springs with rubber pads. The wheels are resilient; a combination of steel and rubber so designed that they transmit less vibration and noise than formerly.

Construction of the car was in the hands of Prof. C. F. Hirschfeld, nationally known engineer and chief of the research department, Detroit Edison Co. He had had, however, no experience in designing street cars. Starting "from the ground up" his first thought was to talk with many street car riders and find out all the things about this form of transport which they did not like. Afterwards he went to the electric railway companies studying economical operation and finally to the manufacturers to have the many ideas worked out.

The new street car will accelerate about twice as rapidly as has been customary. Yet it can do this far more smoothly than do present street cars.

Not only will this improved speeding up decrease the running time for a multi-stop route, but engineers believe it will reduce accidents at traffic stops. At present, it is explained, automobiles can accelerate faster than a street car from a standing start. As a result, drivers like to cut over to the car tracks in front of the car as both get under way. With faster acceleration in the new car, 10 per cent. more than that possible in automobiles, it is believed motor cars will be unable to cross over to the tracks because the street car will already be there.

Finding that rubber tires for street car wheels would not, in their present stage of development, stand the strain of service the development engineers have produced a resilient wheel made of steel parts interlocked with rubber.

To reduce the transmission of vibration from the trucks up to the car body, rubber springs instead of steel springs are used.

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MEDICINE

Treatment of Silicosis With Alkalies Attempted

THE USE of alkalies like sodium bicarbonate for the treatment of silicosis, lung disease which sometimes afflicts miners and other workers in dusty trades, has been tried by Earl J. King and Margery Dolan of the department of medical research, Banting Institute at the University of Toronto.

The results of this form of treatment were too erratic for any conclusions to be drawn, the investigators reported to the Canadian Medical Association.

The treatment was based on their observation that when silica, either in solution or as powdered quartz, gets into the blood stream from the digestive tract it is quickly eliminated by the kidneys. The same thing occurred when solutions of silica were injected directly into the veins. The body apparently has a very efficient mechanism for disposing of silica once it has entered the blood stream in soluble form.

Silicosis, however, is a disease produced by inhalation into the lungs of very fine particles of silica. Studying this aspect, the Toronto investigators found that when silica in solution was introduced directly into the lungs of experimental animals, two-thirds of the silica was eliminated from the body. When finely-powdered quartz dust, such as would be inhaled in dusty atmospheres, was introduced into the lungs, a little less than two per cent. of the amount of silica given was eliminated.

These experiments seemed to indicate that the body fluids circulating in the lungs could dissolve silica even when present in the form of highly insoluble crystalline fragments of quartz.

Tests on miners and on healthy laboratory workers who had been exposed to a large amount of quartz dust for a day showed, as might be expected, that they were actually eliminating more than the normal amount of silica. Evidently the mildly alkaline tissue fluid in the lungs was dissolving some of the silica inhaled and as a result it was getting into the bloodstream and being eliminated.

In the hope of accelerating this natural effort of the body to rid the lungs of disease-producing silica, the investigators tried giving alkali medicines. Results, however, were inconclusive.

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MILLION-DOLLAR STREET CAR