

AN AUTOMOBILE FOR HORSES.

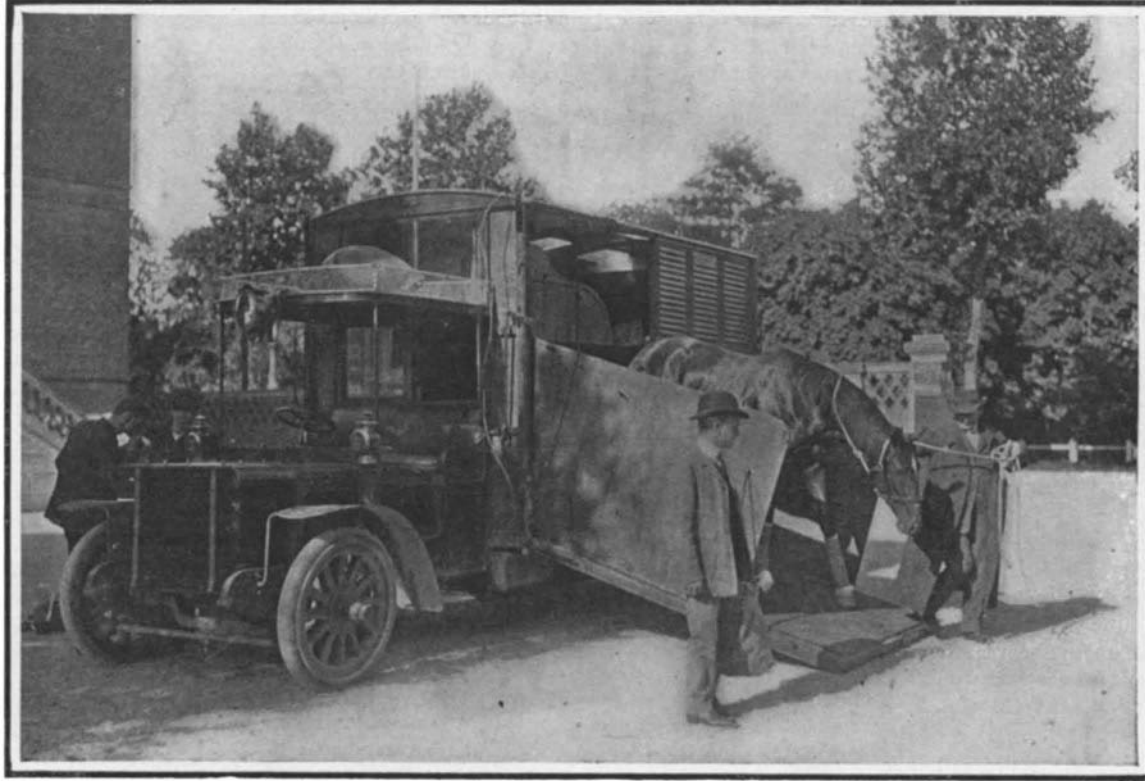
The automobile has surely been placed to no more ironical purpose than that which we herewith illustrate. A French manufacturer has devised a conveyance which is actually intended for the transportation of the very animals which the automobile is intended to supplant. Seriously considered the vehicle has certainly much to commend it. As the reader no doubt suspects, it is primarily designed for the conveyance of valuable racing horses, that cannot be intrusted to a railway without some anxiety. An accident might mean a heavy financial loss to the owner of a horse. In an automobile such as that herewith illustrated a thoroughbred can be transported with considerable safety, and besides, with far more convenience and comfort. The interior of the vehicle is fitted up as a stable with all the requisites to which the pampered horse is accustomed.

ORIGINAL METHOD OF MAKING A RAILROAD FILL.

To enable the new Western Pacific Railway to reach the main water front, where its principal terminal will be located, it was necessary to build a fill across a tide flat extending out from the southern arm of San Francisco Bay. The total length of the fill is not great, being about 750 feet, and the height of the finished grade above the flat is 35 feet. Owing to the soft nature of the bottom, however, it was necessary to dump a large amount of rock into the mud, in order to secure a solid foundation. In some places the submerged rock sank to a depth of fully 40 feet, and in such places the total height of the fill is 75 feet. To have laid the fill by dumping from a temporary trestle would have been both difficult and expensive, and consequently the contracting firm devised the ingenious method shown in the accompanying illustration. Two suspension cables, each 2 inches in diameter, were strung parallel with the axis of the fill, each cable being about 900 feet in length. They pass over wooden towers built of 14 x 16-inch timbers strongly braced together, and are firmly anchored in the ground. The construction tracks are laid in the usual way upon the completed fill; but where the end of the dump is

heavier engineering works there may yet be room for many improved methods, even in such standard work as that of building an ordinary railroad fill. The credit for the design of the suspension system of dumping is due to the Western States Construction Company, who are making the fill with rock excavated from an 1,800-foot tunnel, which the company is boring for the Western Pacific in South San Francisco.

An interesting investigation has recently been



AN AUTOMOBILE FOR HORSES.

started at the Manchester University kite station at Glossop, the object being to determine the electrical conditions of the upper atmosphere. It has long been well known that the air at some distance above the ground level is at a relatively high potential. The observations, however, have not up to the present been extended to any considerable altitude. The experiments are being carried out at Glossop in the following way: A kite is sent up attached to a steel wire which is anchored down to the ground by means of an insulator. The potential difference is first determined, and then the wire is connected to earth through a galvanometer, which measures the current.

A union railway station is now in the course of construction at Leipzig, Germany, which will be one of the largest in the world. The five terminal sta-

Water Sterilized at the Tap.
Ozone is one of our most powerful oxidizers, and advantage has been taken of this fact in a novel manner in France. Drinking-water, though passed through a lengthy cycle of filtering and purifying operations, may be extensively contaminated by micro-organisms. The latest development is the introduction of a certain quantity of the gas into the water at the tap, so that when drawn the liquid is to all intents and purposes perfectly sterile. The apparatus

is very simple and inexpensive to install. Mounted on a small panel some fifteen inches square is a small ozonizer, comprising sheets of glass covered with tinfoil on one side, and freely perforated. A current of air is drawn through these plates, which is ionized under the influence of the electric current. The ionized air passes into an inverted glass bulb into which the water is thrown by the main pressure in the form of a spray, and accordingly it combines with the gas, which immediately seizes upon all bacteria present, oxidizing or dispatching them immediately. The water drawn from the tap is quite germ-proof, while the addition of the ozone imparts a delightful sparkle and an invigorating taste to the liquid. The apparatus is very economical in operation, the ozonizer merely being connected to the holder of an electric lamp, while the simple

task of turning the tap sets the ozonizer in action, switching off the current when the supply is arrested. The electrical consumption is very small, one unit sufficing for the sterilizing of a thousand gallons of water. Over a thousand of these sterilizers have been installed in private houses in Paris, and recently they have been introduced into this country. The system has also been extended to the purification of public supply installations, a huge plant having recently been completed for the sterilization of the drinking water of Nice before its entry into the distributing mains, a plant capable of treating over five million gallons of water per day.

Several recent railway accidents in Germany have been traced to the failure of engine drivers to see signals, which circumstance has caused the Prussian



NEW METHOD OF MAKING A FILL BY DUMPING THE LOADED CARS FROM A SUSPENDED TRACK.

reached, the track is continued over the tide flat and supported from the two cables by means of short lengths of 1½-inch cable, a sufficient stretch of track being hung in this manner to allow three 10-ton dump cars to be run out beyond the fill at a time. When the fill has been brought up to grade, the suspended tracks are imbedded upon it, and a fresh length of track hung upon the cables.

As far as we know, this method of construction is entirely original; and it serves to show that in the

conditions which are in Leipzig at the present time will all be removed upon the completion of the new terminal. This latter is to have 26 parallel tracks which will accommodate the trains of 13 different lines, and between each pair of tracks is to be a walk 40 feet wide, so that the total width of the train shed will be nearly 1,000 feet. The main façade of the building will be 1,115 feet wide, or over 350 feet greater than the façade of the new Union Terminal at Washington, D. C., which is at present the largest in this country.

railway administration to adopt a new signal apparatus. The feature of the new system lies in the warning given the engine driver that he is approaching a signal about 110 yards before the signal itself is actually reached. This is accomplished by the use of an electric cab signal system, which arouses the driver's attention by ringing a bell and exposing a white slide directly before his eyes in the cab. With his attention thus stimulated the driver will have no excuse for running by a signal in a fog.—Railway Magazine.