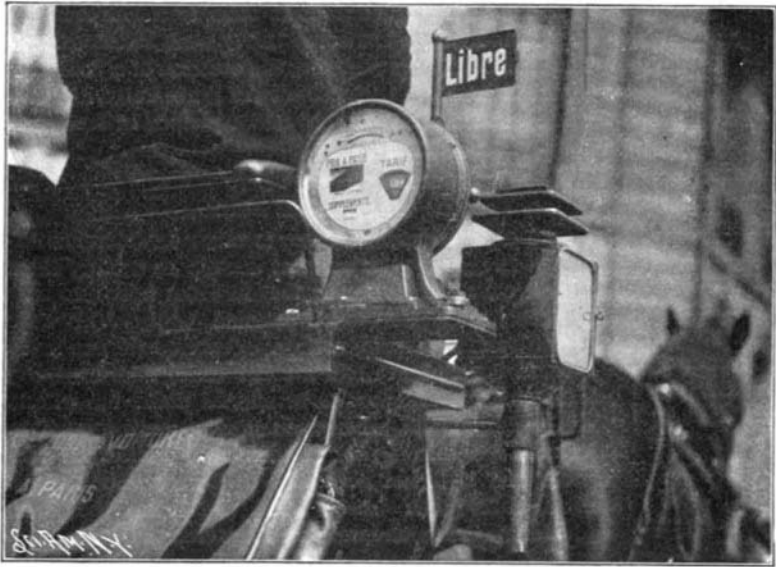


THE TAXOMETER.

The accompanying figure illustrates a new type of counter recently adopted for the public hacks of Paris. The apparatus is actuated by a very simple mechanism that causes it to register, through a measurement



THE DISTANCE AND FARE INDICATOR IN USE ON PARISIAN HACKS.

of the number of revolutions of one of the wheels, the distance traveled by the vehicle during the period of time indicated by a clock carried by the counter.

A tappet secured to a collar mounted upon the hub of one of the wheels strikes, once per revolution, the cam of a pump fixed to the axle. Each of these impacts produces a variation in the pressure of a volume of air contained in the pump; and such variation is transmitted, through a rubber tube, to a small bulb of which every inflation causes a ratchet wheel to revolve by one tooth, through the intermedium of a metallic rod. A train of multiplying wheels, analogous to those of a clock, afterward causes the following readings to appear upon the dial: "Fare to be paid," "Distance traveled," "Extra fare," etc. Every 400 meters (about $\frac{1}{4}$ of a mile), for example, the fare to be paid increases by 10 centimes (2 cents). From the experience of the short time that has elapsed since the appearance of the first hacks with these counters, the following conclusions may be deduced: The new fare is very advantageous for short trips. The first hour costs more than formerly, say $2\frac{1}{2}$ francs (50 cents) instead of 2 (40 cents); but this is largely compensated for by the privilege allowed the passenger of stopping as many times as he desires without being compelled to pay for the complete hour.

New Carbon Compound.

At a recent meeting of the Academy of Sciences of France, held at Paris, M. Henri Moissan presented a paper concerning the preparation and characteristics of a new carbon compound containing molybdenum. This compound is obtained by heating charcoal with melted molybdenum and aluminium in an electric furnace. The resultant metallic mass is treated with a concentrated solution of potash, and needles of well-

It resembles the carburet of tungsten, already known, which is not considered surprising, as the metals tungsten and molybdenum are much alike. It is thought that this new compound may play a rôle in molybdenum steels. The method of preparation shows that even at a rather high temperature (that of boiling aluminium) a molybdenum compound is obtained which contains twice as much carbon as the compounds formed at the highest heat obtainable in the electric furnace.

THE DIVING HORSE.

Our illustration of a horse in midair represents very forcibly the possibilities of animal training. An incline runway about 25 feet above the ground is arranged for the horses to walk or run up, from which they make a plunge and fall into a tank of water below about 12 by 20 feet in area and 12 feet deep. Usually the horses like to make the dive, and the moment they come in sight of the runway they fight to get to it first. The mare goes up first and without hesitation jumps off. The stallion, however, is more diplomatic, for he

excites the onlookers by bows right and left, and then after an inspection of the surroundings he goes slowly forward and quite deliberately jumps, successfully rising in the water well pleased as the crowd cheers.

It appears to be as much sport to the horses as to the spectators.

TRANSPORTABLE WIRELESS TELEGRAPH STATION FOR WAR PURPOSES.

BY OUR BERLIN CORRESPONDENT.

The company which was started some time ago as a consequence of an understanding brought about between the two leading German electrical companies, has since the beginning paid special attention to the use of wireless telegraphy both for naval and military purposes. According to the results so far obtained, communication by two bodies of troops within four days' marching distance of each other is possible with the Morse recording apparatus, while with an acoustic indicator the distance may even be doubled.

In the following, a short description is given of their latest form of portable stations for military purposes.

The stations are arranged for two wave lengths, namely, for a short wave of 350 meters and a long wave of 1,050 meters, the antenna remaining the same for both. With the short wave, the antenna will oscillate in three-quarters, and with the long wave in one-quarter of a wave. The antenna is outbalanced, in the first case, by a counterweight of 6 square meters of copper gauze ex-

of about 3 kilogrammes, while the effective wind surface of the latter is 1.1 square meter, so as to be used even in the case of small wind pressures on account of the saving of gas.

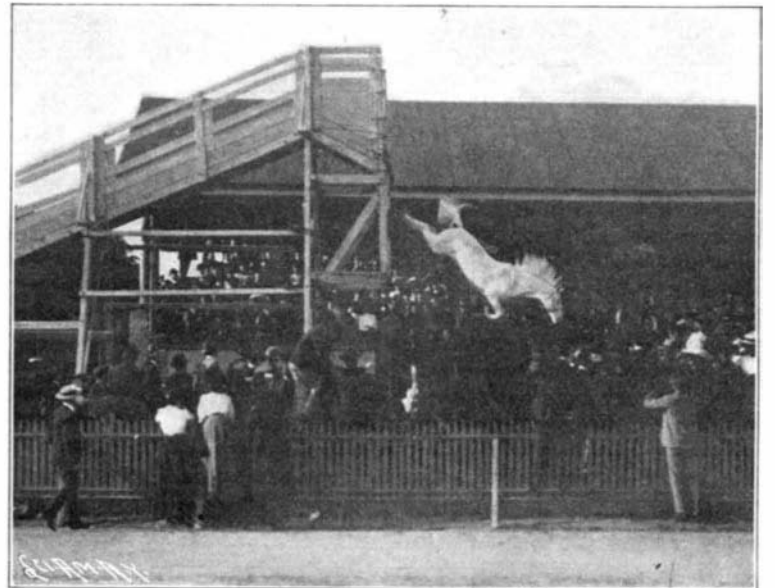
Each station comprises three two-wheel carts, namely, first the power cart; second, the apparatus cart; and third, the tool cart.

The power cart contains the source of current, consisting of a benzine motor of about 4 horse-power, direct-connected to an alternating current generator of an effective output of about 1 kilowatt, and the exciter. The cooling of the motor is effected by water, carried along in a reservoir located above the benzine dynamo. The circulation of the water is effected automatically by means of a small cog-wheel pump, the water being cooled by a tube system and by a ventilator. The benzine necessary for the operation of the motor is carried in a reservoir about 30 liters in capacity, located adjacent to the water receptacle, this capacity being sufficient for a continuous telegraphic service of about 30 hours.

The igniter of the motor is electrical and operated by accumulators, charged automatically from the exciter of the alternate current generator.

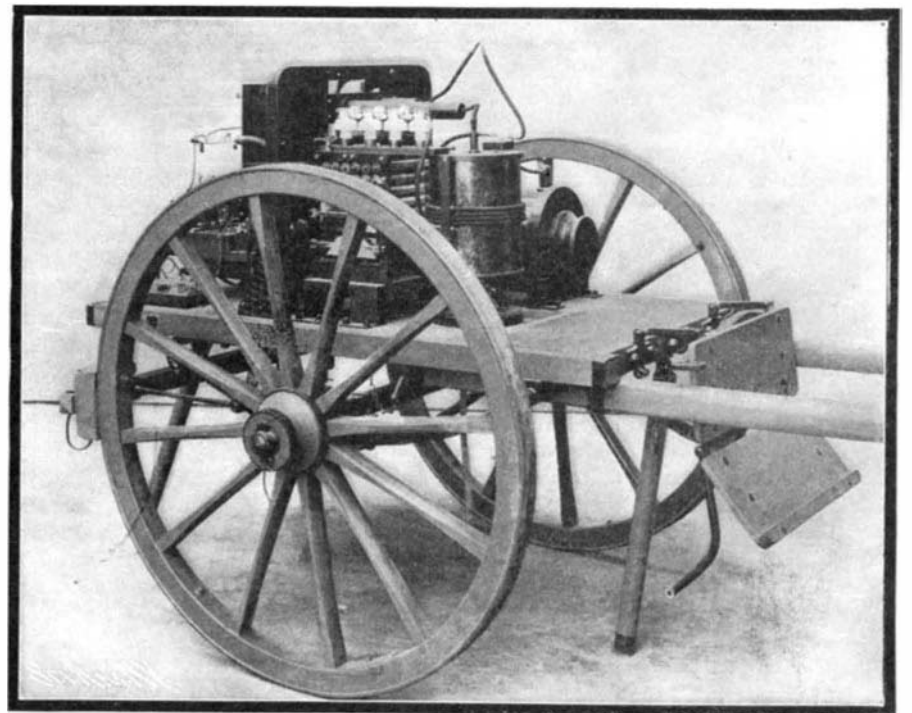
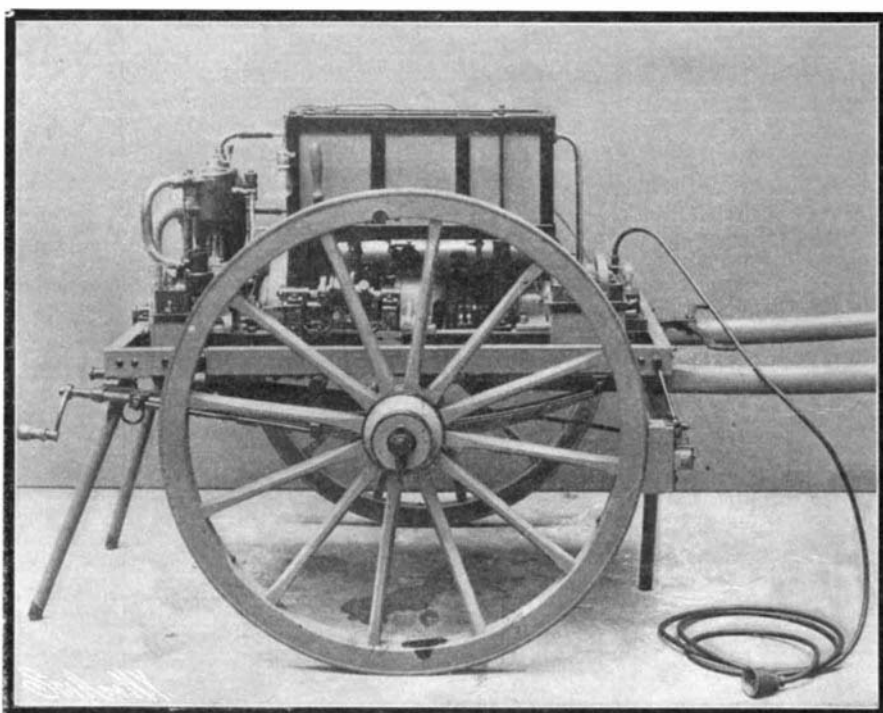
A full supply of accessories and reserve parts is located in the tool box fixed outside of the cart, the side walls of which contain, in addition, the two counterweights as well as bars supporting the latter.

The apparatus cart, separated into two compartments by a frame, contains both the sending and receiving apparatus. In the front part, protected against contacts, are located the high-tension instruments, comprising the induction coil, a battery of Leyden jars with adjustable spark gaps and the high-tension trans-



THE TRAINED DIVING HORSE.

former. By means of a door on the side wall easy access is afforded to permit the renewal of the Leyden jars and the regulation of the spark gap. In the rear is arranged the Morse key, and on a board placed on stout springs, two receiving apparatus and a Morse recorder, while on the board of the latter the smaller



TRANSPORTABLE WIRELESS TELEGRAPH STATION FOR WAR PURPOSES.

defined crystals of the new carbon compound are obtained.

The substance is very hard, is hardly attacked by acids other than nitric, and is not decomposed by water or steam at a temperature below 600 deg. C.

tended at a height of about 1 meter from the ground, while the amount necessary in the second case is as high as twenty-four square meters. The antenna is supported either by balloons or by linen kites; the former have a volume of 10 cubic meters and a draft

receiving transformer is located. On the frame separating the car has been arranged the large receiving transformer, the receiving plug as well as a counterweight switch with two levers. On one of the side walls is the acoustic indicator, comprising an electro-