

AUTOMOBILE STREET SPRINKLER.

BY THE PARIS CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

The city of Paris is now using an automatic street sprinkler of improved design. It is intended to be used on some of the main avenues, where a rapid and effective method of sprinkling has long been desired. The automobile sprinkler has now been in use for some time and has proved quite satisfactory, being much superior to the horse sprinklers which are generally employed throughout the city.

The new car which is shown in the different engravings is a steam tractor of the De Dion type having a 35-horse-power steam engine. It is equipped with a centrally-heated tubular boiler, placed on the front of the chassis. In the central part of the chassis is mounted a horizontal compound steam engine. The movement is transmitted to the rear axle by a universally jointed shaft with bevel gear drive at the differential, somewhat as in the smaller automobiles. The water tank, boiler, and all the controlling apparatus are placed in the front of the car, while the rear platform has mounted on it a large water reservoir of 5 tons capacity for the sprinkling device. This water tank is arranged so that it can be removed from the chassis, which allows the car to be used as an ordinary tractor or hauling wagon, thus increasing its sphere of usefulness.

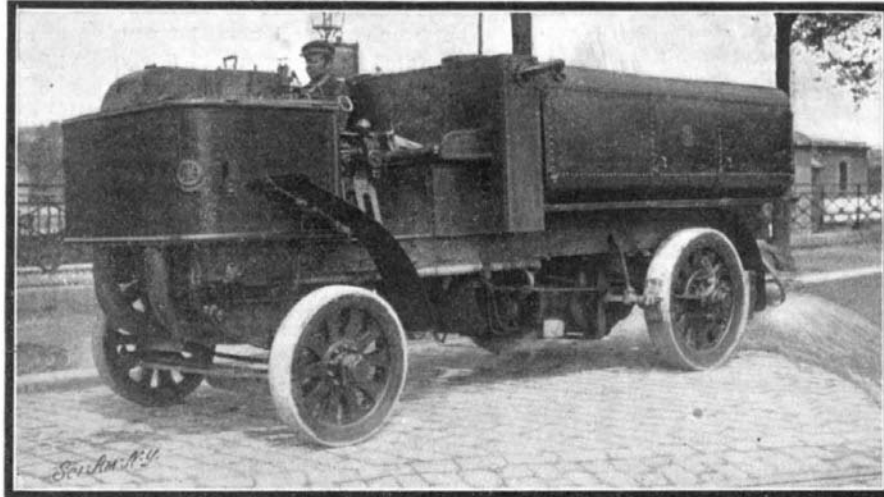
The distance between axles is 10 feet, 10 inches; and the track is 6 feet. The front and rear wheels are 40 and 50 inches in diameter respectively. The rear platform is 4 feet, 8 inches from the ground. When complete, the sprinkler weighs 6 tons, including the water tank, and the speed varies from 5 to 7 miles an hour. The best speed for watering the streets has been found to be 5.4 miles an hour, and the car is now regulated to run at this speed.

The mechanism of the sprinkler has been well designed. The water reservoir for the boiler, which is built of steel plate, connects with the main water tank, and both are filled by the same operation. The water passes from the main tank through a small pipe to a centrifugal pump, which lies underneath and behind the rear axle. A chain and sprocket transmission drives the pump from the rear axle of the car at a speed which is always proportional to that of the driving wheels. As the car travels at the uniform speed of 5.4 miles an hour, the speed of the pump is kept constant. A cone friction-clutch enables the driver to throw on the pump for operating the sprinkler when the car arrives on the spot, and the reversal of the lever throws it off and stops the water stream. A valve is disposed beside the pump, so that in case of need, all the water delivered by the pump can be returned direct to the tank through a suitable pipe. By operating this valve, the driver can make different combinations according to the position of the lever. Thus the water can be sent into the two sprinkling nozzles, or it can be returned to the tank when the sprinkling is stopped. Means are also provided to use only one of the sprinklers at a time. In the latter case the surplus water is returned to the tank through a pipe which, however, has only a narrow passage for the water, so that the pressure shall not fall below the proper limit.

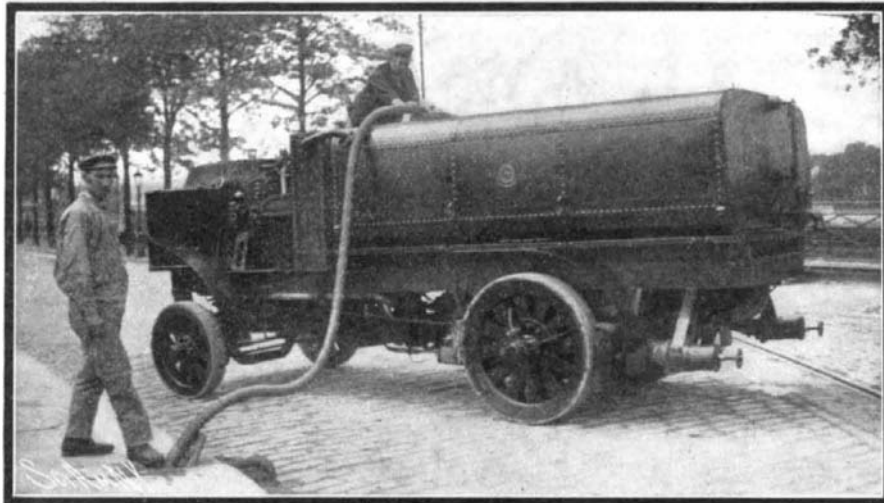
The sprinkling nozzles have been constructed on a new design. The water arrives through a pipe and flows over an inclined plate, from which it spreads in sheets and falls into a semi-cylindrical chamber, whence it escapes by a set of holes in the sides. A screw, operated from the outside by a hand-wheel, regulates the amount of sprinkling. A piston, operated from the hand-wheel, is moved forward or back and the total section of the water orifices is made to correspond once for all to the pressure obtained by the pump, given the width of sprinkling which is required. To work

such a car successfully, the above elements had to be combined with the speed when on the road and the volume of water needed to cover a square yard of ground.

This has been well carried out in the present case, and it is found a practical and economical apparatus. The water comes out in two symmetrical sheets 23 feet wide, and it thus sprinkles a surface 46 feet wide. On the other hand, the 1,250 gallons which the tank contains will water a distance of 0.6 mile. This gives the car a sprinkling capacity of about 1,700



THE AUTOMOBILE SPRINKLER UNDER WAY.



FILLING UP THE TANK OF THE AUTOMOBILE STREET SPRINKLER.

square yards, and this can be covered in a quarter of an hour.

PLANING MACHINE FOR SHIPS' DECKS.

The accompanying illustrations show a ship's deck planing machine for planing the decks of ships, constructed by Mavor & Coulson, of Glasgow. It is actuated by a continuous current, or triphase current, motor. The planing of a ship's deck is one of the most fatiguing and disagreeable kinds of work that a ship's carpenter is called upon to perform, and it is for facilitating such work and doing it more economically that the electric planing machine has been devised. The machine is provided with a triphase motor of 4 horse-power that makes 3,000 revolutions a minute, and actuates the blades with the same velocity. Under ordinary circumstances, the machine planes 360 square feet an hour. The force necessary to operate it consists of a man to guide it, an apprentice to draw it, and another apprentice to sweep up the shavings. In England, the total expense for this labor is 25 cents an hour. By manual labor a carpenter can plane scarcely more than 45 square feet a day, and this re-

resents an expense of \$2.50. The machine therefore performs in one hour, and at an expense of 25 cents, the work of eight men for one day at an expense of \$20. Upon a ship of medium size, the saving effected by the use of this machine for the planing of a deck is about \$400.

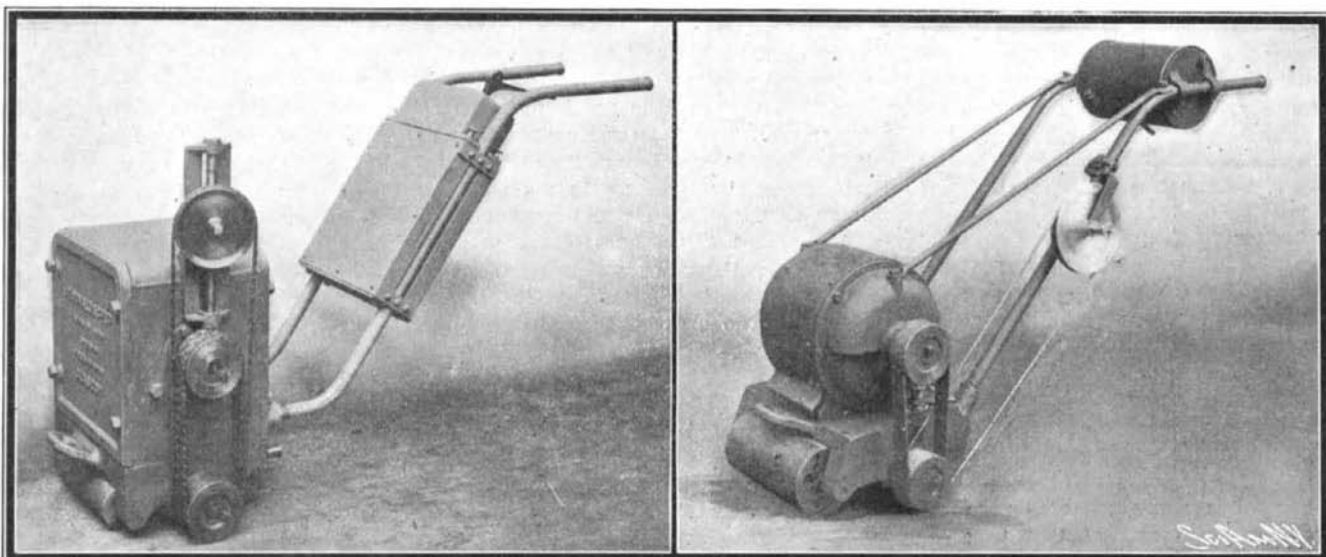
Curious Burial Relics of the Ancient Egyptians.

The excavations which were commenced at Beni-Asan, on the east bank of the Nile, some two hundred miles above Cairo, in December, 1902, have now been completed. There have been discovered and searched in the necropolis extending along the face of the limestone cliff, 887 tombs, including that of Sebek Hetepa, 2300 B. C., together with its curious funeral models. Each burial chamber was formed of a recess at the base of a square shaft, occasionally at a depth of thirty feet, hewn in the solid rock and carefully filled in. By this careful means the body of the deceased was preserved from disturbance. This type of burial antedates the mummification period; but it was found in the case of two bodies that decay had been arrested by the wrappings, which were found still intact. Each tomb contained a wooden sarcophagus, with the lines of religious formulae and text inscribed upon it in the orthodox hieroglyphics, and with the head pointing to the north and the painted "eyes of Osiris" toward the east. The sarcophagus was surrounded with a large number of little wooden models representing river and sailing boats, a granary, group of persons baking, a man brewing, a man leading an ox, a girl carrying a brace of birds in her hands and a basket on her head. Notwithstanding the extreme age—four thousand years—of these curious relics, they were found to be in a remarkable state of preservation, the oarsmen in the galleys leaning upon their oars intact, and the paint still bright and clean. The ceremonies attending the interment of a woman were slightly dissimilar, the departed lady being provided with a basket of toilet requisites. These curious little models were buried in accordance with the ancient Egyptian religious rites, in order to

provide the departed one with the necessaries for their future life. One highly interesting discovery was made in the course of these excavations—an exact counterpart of the modern weaving reed as used in the mills at Wigan (England), the only difference being that the ancient Egyptians of 2300 B. C. used cane teeth instead of steel.

Safety Device for Handling Plate Glass.

After a piece of plate glass has been formed in the casting room of the factory, it is the custom to remove it by the combined efforts of a gang of men. Sometimes, owing to a defect, which may not be noticeable except under the closest scrutiny, the glass collapses while it is being thus transported and such an accident generally results in the death or injury of one or more of the men engaged in the transportation of the big sheet. By means of a new invention which has been made by two workmen, Oscar Lewellen and John H. Schuck, of Kokomo, Ind., these plates will in the future be carried from the casting house by means of a machine which will not only do the work more quickly but be the means of saving the lives of many men which were formerly risked every time it was necessary to move one of these great pieces of glass. By the new device referred to, the plate will be lifted by pneumatic pressure, and it is designed by the inventors to equip a plant with such an installation that the plate will be carried through all of the various processes by this mechanical means and it will never be necessary to handle it by human effort.



A PLANING MACHINE FOR SHIPS' DECKS.