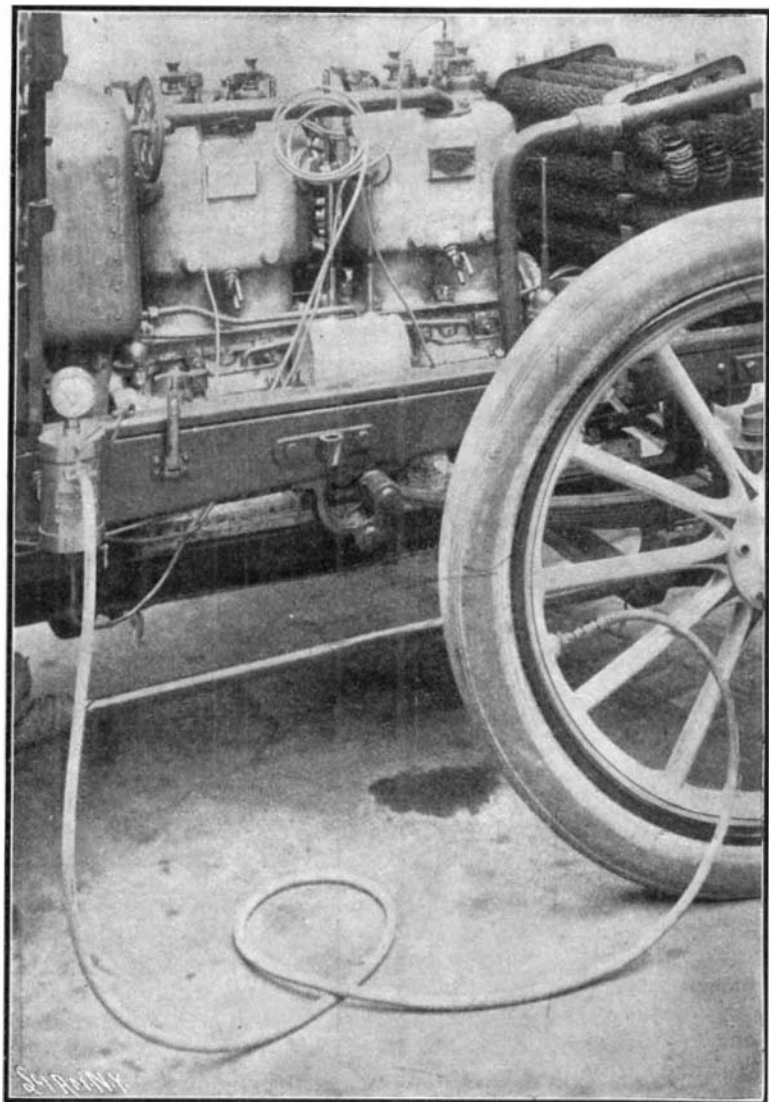


### A NOVEL AUTOMATIC PUMP FOR INFLATING AUTOMOBILE TIRES.

BY THE ENGLISH CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

Every automobilist is painfully aware of the arduousness, time, and manual labor involved in the inflation of pneumatic tires. With a view to overcoming this exhausting, and, to say the least, primitive system



**AUTOMATIC AUTOMOBILE TIRE INFLATER.**

for the inflation of tires, a novel and convenient apparatus, called the "Pompeesi," has been placed on the market by Messrs. Jarrott & Letts, Ltd., of London, who handle the American Oldsmobile runabout in Great Britain.

In this device manual labor is entirely dispensed with, for the process is accomplished entirely by the engine. Inflation is achieved by utilizing the force generated by the explosion of the gaseous vapor in the cylinder of the motor, in a simple and efficient manner. Furthermore, owing to the ingenious system adopted, it can be utilized with an engine comprising any number of cylinders, the work being as efficient with one cylinder as a multiple-cylinder engine. As will be recognized from the accompanying illustration, the device is small and compact, and constitutes a permanent fixture of the vehicle, being attached to the frame, dashboard, or any other convenient spot.

The apparatus consists primarily of a special plug-fitting. One of the ignition plugs is unscrewed and withdrawn from its place in the cylinder wall, and this special fitting is inserted. This special fitting, although it allows the ignition plug perfect and free communication with the combustion chamber, at the same time does not permit of its being screwed close against the cylinder wall. The fitting is a small metal box provided with a valve, which admits the consumed gaseous vapor from the cylinder after the explosion.

From this valve box extends a length of coiled steel tubing to the main part of the apparatus. A long section of pipe is provided, so that the hot gases may be sufficiently cooled before they enter the cham-

ber of the apparatus. This cylindrical chamber, which is made of nickel, is for the purpose of purifying the exploded gases. Within are placed a series of circular baffle plates with a narrow opening at one point of their peripheries, to admit of the gases traveling from one concentric passage to the other. The gas enters the purifying box in the center, and is forced around the circular baffle plates into the outside passage. This chamber serves a useful object in arresting all oil or other impurities that may be admitted from the combustion chamber of the motor, and which would prove deleterious to the fabric of the tire.

To the upper part of the cylindrical box is attached the flexible rubber hose leading to the valve of the tire.

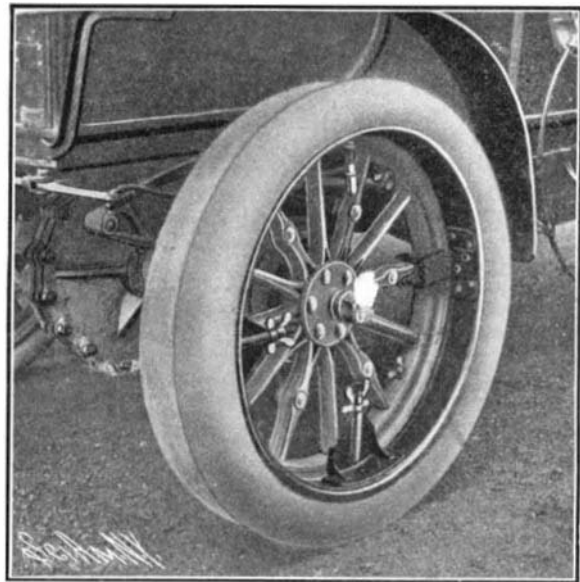
Owing to the fact that no interference is afforded to the combustion of the gases in the explosion chamber by the insertion of the ignition plug into the special fitting or valve box, this section of the apparatus can always be left in connection. When the operation of tire inflation is not in progress, the flexible India-rubber hose is disconnected from the cylindrical purifying chamber, and a cap screwed on to render it a perfectly tight joint.

To operate the apparatus, the engine is first stopped. The valve of the deflated tire is then connected to the fixed cylindrical purifying box by the flexible rubber tubing. The motor is started again. The greater part of the exploded gases in the cylinder to which the special plug is screwed pass through the inlet valve of the valve box at the plug. The valve then closes, and as the gases cannot escape back again, they pass through the coiled steel hose, cooling in transit, pass through the purifying chamber, and thence pass into the tire. When the desired pressure in the tire is attained, as indicated by the gage attached to the purifying chamber, the engine is stopped, and the flexible rubber tubing is disconnected.

When the engine is running, the exploded gases still escape for a time into the valve box; but as their passage is stopped when they reach the purifying chamber, the pressure behind the valve in the valve box soon becomes sufficient to prevent the valve opening and the gases escaping in that direction, and they therefore pass into the muffler or exhaust box in the usual manner. At the bottom of the purifying chamber is a small drain cock, through which any oil that may have collected in the purifying chamber may be withdrawn.

The "Pompeesi" has proved highly efficient in actual operation. It can be connected and set to work in ten seconds. The saving of time occupied in the inflation

of the tires, too, is considerably reduced, varying from two to three minutes according to the size of the tire. Experience has shown that the consumed gases of the explosive mixture exercise no deleterious effect upon the fabric of the tires. In fact, the reverse has proved to be the case, as they act more as a preservative. The tires furthermore stand inflated appreciably longer by this means, for the temperature of the gases is reduced to that of the outer atmosphere, which fact was proved in a special test, no fall in the pressure being observed on the gage after the tires had stood inflated for twenty-four hours. Owing to the simplicity of the device, there is nothing to get out of order. It can be as easily adapted to all engines, whether the plugs be fitted horizontally or vertically, or whether magneto ignition is employed. The device, which is of French



**NOVEL SPARE WHEEL AND TIRE DEVICE FOR AUTOMOBILES.**

origin, has been awarded the gold medal by the Automobile Club of France.

### NOVEL SPARE WHEEL AND TIRE DEVICE FOR AUTOMOBILES.

An interesting reserve-tire device has been placed upon the English market. By this contrivance, instead of carrying a spare tire or tube ready for replacing a tire that fails through puncture or any other defect on the road, a complete rim and tire fully inflated ready for use is carried on the car. The device comprises a special rim carrying the tire, which is fully inflated. To this rim are fixed three clips. When a puncture occurs, instead of stripping the defective tire from the wheel, and substituting a new tire or repairing the defective one, this reserve wheel and tire is firmly clipped by thumb screws to the rim of the defective wheel. This wheel lifts the punctured tire off the ground and carries all the friction, so that the punctured tire is as safe as if it were withdrawn from the wheel.

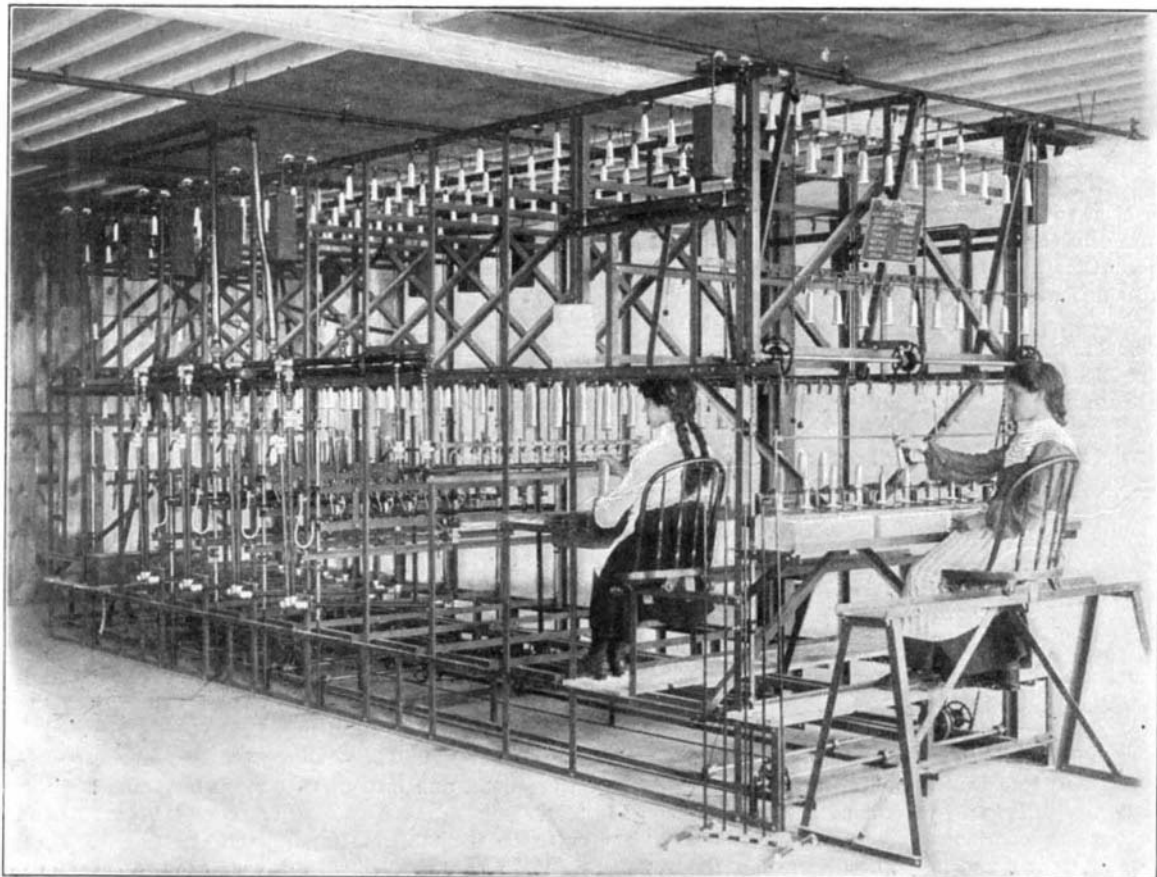
The advantage of this invention is that delay on the road through a failing tire is reduced to the minimum.

The spare tire and wheel only occupies one minute to attach in position and even tire inflation is dispensed with, as the tire is carried already fully inflated. The accompanying illustration shows the principle of the invention, and how it is attached. When carried, a hoop or ring is made the same size as the tire in order to clip it thereto. This appliance is the invention of Messrs. Davies Brothers, of Llanelly, Wales.

### A MACHINE FOR AUTOMATICALLY MAKING INCANDESCENT GAS MANTLES.

In this country, at the present time, about forty million incandescent gas mantles are used annually. Vast as this quantity is, the industry in America is still in its infancy; and widely as the mantle itself has been introduced, the average user knows little of the composition of the mantle.

Briefly stated, a mantle is made as follows: A "stocking" is first knitted of cotton thread and then saturated with a solution of thorium.



**THE ROBIN AUTOMATIC INCANDESCENT MANTLE-MAKING MACHINE; CAPACITY, 4,500 MANTLES PER WORKING DAY OF TEN HOURS.**